

INPUTSM

Atrium at Glenpointe, 400 Frank W. Burr Blvd., Teaneck, NJ 07666 Tel. (201) 801-0050
Fax (201) 801-0441

June 25, 1992

Mr. Thomas Moldauer
Andersen Consulting
69 West Washington Street
Chicago, IL 60602

Via Fax

Dear Tom:

Attached are INPUT's integrated proposals for (a) identification of future "best bets" applications software markets, and (b) developing a yardstick to measure application software opportunities.

As we discussed on the telephone, at the presentation of results you will receive 95%+ of the findings and recommendations. The written report would address issues raised at the presentation and make the findings self-contained.

INPUT believes that we could make a significant contribution to Andersen's initiatives in these areas and look forward to working with you.

Sincerely,



Thomas O'Flaherty
Vice President

a:prop:YNGEN70



SCHEDULE AND FEE FOR PROPOSALS

**IDENTIFICATION OF FUTURE "BEST BET"
APPLICATIONS SOFTWARE MARKETS
and
DEVELOPING A "YARDSTICK" TO MEASURE
SOFTWARE PRODUCTION OPPORTUNITIES**

Submitted to
ANDERSEN CONSULTING

June 25, 1992

Submitted by

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, New Jersey 07666

201-801-0050
Fax: 201-801-0441



SCHEDULE

<u>Week</u>	<u>Task</u>
1	INPUT meets with Andersen in Chicago: review Andersen plans; review criteria. Develop questionnaire.
2	INPUT: interviews; collects data for market share and case studies. Prepares initial scan of market opportunities.
3	Work session in New Jersey on "best bets". INPUT analyzes yardstick information
4	INPUT completes analysis and and prepares presentation
5	Present results in Chicago
6	Prepare written report

FEES

INPUT's professional fee for the study will be \$38,000.

One-half of INPUT's professional fee for the study is due and payable upon authorization of the study; the remainder at the time of the presentation of results.

Out-of-pocket expenses (telephone, production, and travel) are in addition to the professional fees and will be billed at cost. INPUT does not expect these to exceed \$2,000.

INPUT can begin work on July 2. This proposal will remain valid for thirty days, unless extended in writing. Andersen Consulting can initiate the study by providing authorization in the blocks provided below.



AUTHORIZATION

To authorize the project as specified, please sign and return one copy of this proposal, along with the initial fee. Upon acceptance by INPUT, a countersigned copy of the proposal will be returned to Andersen Consulting.

AUTHORIZED BY:

Andersen Consulting

ACCEPTED BY:

INPUT

Name _____

Name _____

Title _____

Title _____

Date _____

Date _____



REVISED PROPOSAL

IDENTIFICATION OF FUTURE "BEST BET"
APPLICATIONS SOFTWARE MARKETS:
BACKGROUND, SCOPE AND CONDUCT OF THE WORK

Submitted to

ANDERSEN CONSULTING

June 25, 1992

Submitted by

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, New Jersey 07666
201-801-0050
Fax: 201-801-0441



Note: This proposal discusses the background, scope and conduct of the work for identifying "best bet" applications software opportunities. The work would be done in conjunction with a parallel study on developing a "yardstick" to measure software product opportunities. A separate proposal on background, scope and conduct of the work has been prepared for that project.

The two projects have a unified schedule and fee quotation, which is submitted separately.

I. BACKGROUND

Andersen Consulting wishes to identify the applications software markets that are most likely to be successful over the next five to ten years.

II. SCOPE

A. Definitions

INPUT has applied the following definitions/working assumptions :

- Size of offering: \$100,000 or more generally purchased at one time; no platform or other limitations; tailoring or customizing expenditures not included as a factor.
- Focus is on opportunities for new or significantly enhanced products.
- Segments must meet annual unit sales minimums (approximate); ground rules will be established based on estimated investment and growth parameters.
- The vertical focus will be manufacturing (i.e., aerospace and defense, fabricated products, electronics and appliance, automotive, food/packaged goods manufacturing, oil and gas, chemical, pharmaceutical, metals, pulp and paper, textile), wholesale distribution, food retail (essentially supermarkets) and other retail
- "Horizontal" applications (e.g., financial reporting and analysis, geographic information systems, logistics management) will be examined largely within the context of the selected verticals; where other verticals represent an additional opportunity, these will be commented on, but there will not be extensive analysis. (This could be addressed as a later phase.)
- The most emphasis will be placed on segments with market discontinuities (see Exhibit 1 for a summary of potential discontinuities).



- Steady-state applications areas will receive a lower priority even if replacement sales are high; the assumption is that these markets will be much harder to break into, unless Andersen is already established there.
- A preliminary assessment will be made of the competitive environment, but this will not be a determining factor.
- Twelve opportunities will be identified.
- Factors affecting the U.S. market are the most important; however, there should also be a European dimension to the analysis. The impact, if any, in the Japanese market should also be commented on.

B. Issues To Be Addressed

The primary issue is: What are 12 of the leading opportunity areas for software investment?

Subsidiary issues, which should be addressed for each opportunity area, cover the rationale for an opportunity and include some or all of the following:

- How does the software opportunity relate to general business issues and changes affecting the segment? How can an opportunity be differentiated within a segment?
- How closely linked is a particular software opportunity area to other software areas? Some areas, e.g., logistics management, are closely tied to both horizontal and vertical applications (see Exhibit 2 as an example).
- What is the competitive environment?
- In general, how does an opportunity map against the "discontinuity" factors?



III. CONDUCT OF THE WORK AND METHODOLOGY

A. General Approach

INPUT will rely on its ongoing syndicated research (the Market Analysis Program - material attached for both the U.S. and Europe) to serve as a foundation for this project. However, the bulk of the value-added analysis for this project will come from the collective experience of INPUT's professional staff.

The work will be conducted in two steps, starting with a coarse screen of opportunities, followed by the detailed assessments.

B. Conduct of the Work

INPUT will be briefed by Andersen, either at a meeting or by telephone. INPUT believes that it would be very useful that Andersen indicate new products and product enhancements already committed to. This will greatly assist in deciding where opportunities lie in areas where no near term discontinuities are expected.

INPUT will then prepare a list of candidate opportunity areas (probably 40 or 50). Each candidate area will have a short description including the following:

- Identifying title (e.g., travel management software for businesses)
- A short paragraph describing its functions
- Industry(ies) and, especially, niches covered
- Closely-related applications
- Discontinuities

These will be reviewed with Andersen at an all-day work session at INPUT's New Jersey office. In the course of this work session opportunities may be added or dropped to this list.

INPUT will then conduct a more in depth analysis to identify the critical factors for success. These factors will include:

- An assessment of overall market size and growth, with business-related rationales, especially market discontinuities foreseen.
- An assessment of Andersen's opportunity, given its current position in this or related markets. This will include order of magnitude annualization of unit sales and build-up, where appropriate.
- Customer needs and values
- Competition



INPUT will review these findings with Andersen and then prepare the final assessment on 12 opportunity areas. At this point INPUT expects an opportunity to fall into one of these areas:

- A classic vertical application appealing to a particular industry or, more likely, a niche in an industry.
- A basically horizontal application with some vertical flavor (e.g., financial planning and reporting)
- An application in a new technical setting that creates additional customer value or benefits (e.g., client/server-based branch automation).

INPUT expects that its final work product will consist of its analysis and recommendations for each of the 12 opportunity areas.

INPUT would be available for further detailed research or discussion with Andersen, but this work is not contemplated within this proposal.

IV. QUALIFICATIONS

INPUT is highly qualified to conduct this study.

INPUT's work in vertical and horizontal information services gives INPUT a unique foundation of data and insight (see the material on the Market Analysis Program for both the U.S. and Europe). This will enable INPUT to start quickly and efficiently.

The INPUT staff assigned to this project will bring a great deal of industry and software product experience to the project. The core project team will be from INPUT's New Jersey office and will consist of Thomas O'Flaherty, Vice President, and John McGann, Principal Consultant. In addition, Peter Lines and Roger Fulton from INPUT's European office and Tetsuo Imai of INPUT's Tokyo office will contribute from their geographic perspectives. Peter Cunningham, President, and Dennis Wayson, Vice President, will provide overall review and quality control. Their biographies are attached. Other INPUT staff will be involved in this project as needed.

Note: Please see separate pricing and schedule section.



Exhibit 1

CHANGES AFFECTING SOFTWARE PRODUCT SALES

<u>Changes In:</u>	<u>Phase in Software Cycle</u>	
	<u>Build-up (Systemic Change)</u>	<u>Steady State (Organization- Specific Change)</u>
Business Environment	<ul style="list-style-type: none">• Regulations• General Economy	<ul style="list-style-type: none">• Corp. Profitability• Reorganization (Acquisition)
Product Characteristics	<ul style="list-style-type: none">• Industry Requirements• "Need Creation"	<ul style="list-style-type: none">• Corporate Strategy• User Needs• Reaction to Competition
Technical Environment	<ul style="list-style-type: none">• New Platforms (HW/SW)	<ul style="list-style-type: none">• Platform Conversion

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REVISED PROPOSAL

**DEVELOPING A "YARDSTICK" TO MEASURE
SOFTWARE PRODUCT OPPORTUNITIES:
BACKGROUND, SCOPE AND CONDUCT OF THE WORK**

Submitted to

ANDERSEN CONSULTING

June 25, 1992

Submitted by

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, New Jersey 07666
201-801-0050
Fax: 201-801-0441



Note: This proposal discusses the background, scope and conduct of the work for developing a "yardstick" to measure software product opportunities. The work would be done in conjunction with a parallel study on identifying "best bet" applications software opportunities. A separate proposal on background, scope and conduct of the work has been prepared for that project.

The two projects have a unified schedule and fee quotation, which is submitted separately.

I. BACKGROUND

Andersen Consulting is looking to perform more quantitative and analytic checks against its applications software investment business cases. Andersen believes that this process would be assisted considerably if there were available profiles or templates of software product "market behavior", including such things as:

- Annual purchase rate profiles, showing the percent that would be expected to purchase a vertical software product. Possible scenarios include:
 - Stimulated market (by regulatory changes, technology changes, etc.)
 - Normal mission critical
 - New applications (where packaged solutions did not exist or where a particular solution is new for an industry)
- Target, steady-state market share for a software product, with two major variables: Several major players, no major player.
- Market entry build-up for an existing company, for a new application area as well as a next generation of a current application.

Andersen has indicated that these scenarios may be modified in developing the approach or in the course of the study. Andersen has indicated that it is open to other models or scenarios, as long as the scenarios above are covered.

The results will be used globally, but analysis covered in this proposal will be largely focussed on the U.S. The analysis should focus on products where a single sale is typically large (i.e., over \$100,000) and sold to large companies or divisions of large companies. Either traditional unitary mainframe products or suites of products (e.g., in the client/server environment) would qualify.

Andersen has requested that INPUT prepare this proposal indicating how INPUT would address this set of issues.



II. SCOPE

In the course of this study, the following issues should be addressed and answered:

- Is there a single model (or series or related models) which would describe the life of the typical software product and/or market?
- To the extent that there are different phases in the product life cycle, what factors would affect the "build-up" as opposed to the "steady-state" parts of cycles? How much do purchase rates differ, depending on which part of the cycle a product (or market) is in?
- Besides identifying these factors, what is the relative importance of individual factors, or groups of factors?
- How does the market share potential differ, depending on the state of the software product cycle? What other factors affect this?
- What are the major distinctions in new entry build-up, depending on whether a totally new application or an application "enhancement" for the same prospect set is involved?
- How well do these models track against actual customer behavior in the past? And future intentions?

III. CONDUCT OF THE WORK AND METHODOLOGY

INPUT will explain both the conceptual foundations of its approach as well as how INPUT would actually conduct the work.

A. Concept

Product life cycles are well-known, beginning with introduction and ending with decline. Software is different in several respects:

- Software never "wears out" (although users may often wish that it did)
- More importantly, software products (and software product groups) do not necessarily decline but often renew themselves during periods of "discontinuities". This process is illustrated schematically in Exhibit 1.



Changes in demand can occur because of changes in product characteristics or in the external business or technical environments. An important set of factors is whether these changes are systemic or organization-specific.

- If systemic, then these can give rise to a new product; or, where there is an existing set of products, there may be a discontinuity -- new vendors may be more able to compete and the identity of leading vendors may change.
- Organization-specific changes, on the other hand, are less likely to occur in many organizations simultaneously and would usually be responsible for product change in the less intense steady state.
- Exhibit 2 illustrates the differences that are likely to be causative factors in the build-up and steady-state phases. One of the key issues in the research phase is to place at least approximate weights on these. This would make it easier to classify both markets and product proposals along the cycle continuum.

INPUT believes that new applications and enhanced applications inhabit different parts of the model, as hypothesized in Exhibit 3. Research would confirm/modify and quantify this.

Similarly, INPUT believes that target market shares may differ, depending on the phase in the software cycle (Exhibit 4).

- During the initial build-up phase there would often be many players. There may be no clearly dominant products and/or market share leadership could quickly change.
- In the steady-state phase, several dominant products are much more likely to emerge. This dominance can occur due to several factors (often operating simultaneously), including: superior product characteristics, marketing and support, third party relationships, acquisitions, or mistakes on the part of the competition.
- From a competitive standpoint, the most important period is during a period of discontinuity.
 - New vendors and products will be much more acceptable; often welcomed, in spite of (or because of) compatibility issues.
 - Established vendors may not move quickly enough owing to a belief in their product, the perceived need to remain compatible, the apparent satisfaction of the customer base or fear of competing with their own established product.
 - Market needs may not always be clear (or may be changing). Consequently, the rush of new products and changes in market share will be similar to the initial build-up phase, except that the battle will be fought against a backdrop of dominant players. These dominant players may emerge re-invigorated or may share leadership with new products.



Research would also be needed to confirm/modify and quantify these statements, by means of:

- Tracking vendor shares in several market segments over a cycle to note how leadership positions and target shares were affected by discontinuities and competition.
- Examining how individual products/vendors responded to (or accelerated) changes in the competitive environment and the impact on market share.

INPUT would perform research and analysis to clarify and quantify the conceptual approach described above. INPUT expects that the real-world research will modify or expand some of the details above as well as flesh out the model.

B. Conduct of the Work

INPUT is proposing a study that will have three mutually reinforcing components:

- Interviews with large U.S. companies (\$100 million in revenues or equivalent per company or operating unit)
- Tracking of vendor rankings in selected categories over the last ten years.
- Case studies of selected vendors/products

1. Customer Interviews

INPUT will interview 60 U.S. companies on their significant application plans:

- "Significant" = \$100,000 plus investment
- This includes software products, in-house development or vendor-developed custom software.
- Enhancements are included where planned and budgeted as a significant item and will not include ongoing maintenance.
- The time scale will be from 1980 (or as far back as is reliably known) to as far in the future as is reliably known)

The purpose will be to develop an application census (divided into major categories) and, most importantly, to identify what the most important reasons were for making changes. The reasons would be developed from the list in Exhibit 2.



When the analysis is completed, the following information will be available:

- Purchase rates for stimulated, normal and new applications.
- Relative importance of the individual factors in, for example, business change vs. regulatory stimulation.
- Differences between horizontal vs. industry-specific applications as a class.
- An assessment as to the importance of individual industries.

INPUT recommends that 60 telephone interviews be conducted, divided between two industries. INPUT recommends the following industries :

- Fabricated metal products (in discrete manufacturing)
- Food/packaged goods (in process manufacturing)

These markets could be replaced by others by mutual agreement.

INPUT would draft the questionnaire for Andersen review and conduct interviews using INPUT staff; Andersen would not be identified as the client in any public research. INPUT would perform the analysis, prepare and present a presentation in overhead transparency format and deliver the presentation in Chicago. After receiving feedback, INPUT would prepare a written report.

2. Track Vendor Shares

To confirm and supplement the interview research, INPUT would track leading vendor shares for a product or product group in each of the markets listed above.

INPUT would use the data for markets and vendors which it has tracked since 1974, supplemented by direct inquiry to vendors and other data. Andersen would not be identified as the client.

These would be correlated with the findings of the interview study and presented at the same time.



3. Case Studies

As a further correlation, INPUT would select, in consultation with Andersen, five products to be analyzed. This analysis would include: Sales/sites, product changes, competitive reaction.

INPUT would use the data for markets and vendors which it has tracked since 1974, supplemented by direct inquiry to vendors and other data. Andersen would not be identified as the client.

These would be correlated with the findings of the interview study and presented at the same time.

4. Summary

INPUT believes that this methodology will provide a very strong method of "triangulation" to identify the most important factors that Andersen will be apply to apply to product and market opportunities.

IV. INPUT'S QUALIFICATIONS

INPUT believes that it is uniquely qualified to assist Andersen in this project.

INPUT has been actively tracking software markets and vendors since 1974. Reports and backup is retained for at least ten years for project such as this. Descriptions of the Market Analysis Program and Vendor Analysis Program are attached.

INPUT is very experienced in conducting special studies such as this one. Many of these studies involve original research and analysis to supplement its program information. INPUT conducts over 100 such special studies annually.

Last, and not least, INPUT understands software markets and the software industry. INPUT has consulted to many of the leading software products companies internationally.

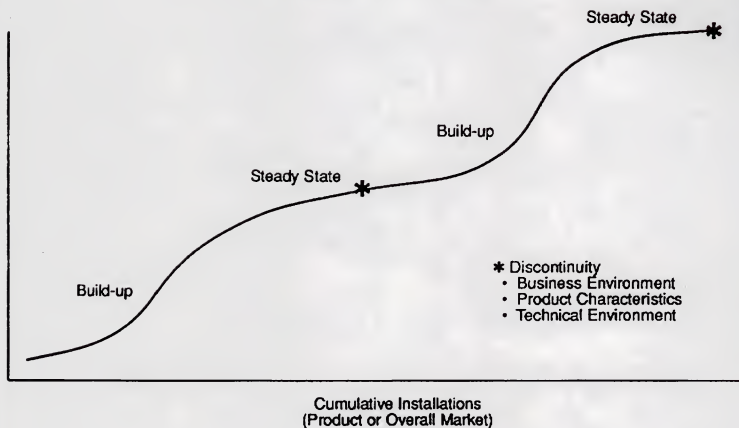
The project will be directed by Thomas O'Flaherty, Vice President. He will be assisted by John McGann, Principal Consultant and Joanne Ponnwitz, Associate Consultant. Review and quality control will be provided by Dennis Wayson, Vice President. Their biographies are attached. Other INPUT staff will be drawn on as required.

Note: Please see separate pricing and schedule section.



Exhibit 1

Software Product Cycles



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Exhibit 2

CHANGES AFFECTING SOFTWARE PRODUCT SALES

<u>Changes In:</u>	<u>Phase in Software Cycle</u>	
	<u>Build-up (Systemic Change)</u>	<u>Steady State (Organization- Specific Change)</u>
Business Environment	<ul style="list-style-type: none">• Regulations• General Economy	<ul style="list-style-type: none">• Corp. Profitability• Reorganization (Acquisition)
Product Characteristics	<ul style="list-style-type: none">• Industry Requirements• "Need Creation"	<ul style="list-style-type: none">• Corporate Strategy• User Needs• Reaction to Competition
Technical Environment	<ul style="list-style-type: none">• New Platforms (HW/SW)	<ul style="list-style-type: none">• Platform Conversion

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Exhibit 3

MARKET ENTRY DYNAMICS

<u>Phase in Software Cycle</u>			
<u>Market Entry Options</u>	<u>Initial Build-up</u>	<u>Steady State</u>	<u>Discontinuity Build-up</u>
New Application	Typical	Rare	Often Occurs
Application Enhancement	Application Spin-off	Incremental Improvements	Next Generation

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Exhibit 4

MARKET SHARE DYNAMICS

<u>Phase in Software Cycle</u>			
<u>Market Share Factors</u>	<u>Initial Build-up</u>	<u>Steady State</u>	<u>Discontinuity Build-up</u>
Many Players (No Dominance)	Typical	Rare	New Players Entry
Several Dominant Players	Rare	Typical	New Leaders May Emerge

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June 18, 1992

Mr. Thomas Moldauer
Andersen Consulting
69 West Washington Street
Chicago, IL 60602

Dear Tom:

Attached are INPUT's proposals for (a) Developing a Yardstick to Measure Application Software Opportunities; and, (b) Projecting Areas of Growth for Vertical Application Software.

In the first proposal, INPUT has taken a somewhat different approach in constructing scenarios for yardsticks. This was done for the following reasons:

- We felt increasingly uncomfortable in relying only on case studies, since the selection the relatively few case status could inadvertently influence the conclusions. Equally important, case studies cannot provide weighting factors for guidance on how important the different types of scenarios might be.
- INPUT's approach also has the virtue in that it provides a single model, with room to insert (and test for) a number of variables.

INPUT has not yet published this model, since we are still working on it. We request that you not share this model and analysis with people outside of Andersen since (a) we expect to make further adjustments to it; and, (b) we consider this proprietary material.

It is our understanding that INPUT may be the only firm that will propose a model-based approach combined with a modified case study approach. This may make our proposal more difficult to assess and, consequently, we would like to receive the opportunity to not only answer questions but to supplement this proposal with additional information if required.



The second proposal plays directly off of the work that INPUT has been doing in vertical markets for some time and is straightforward . One issue that we didn't raise in the proposal (although it was implied) is whether some of the industry segments should be collapsed together and others divided more finely.

These proposals are being transmitted by fax. A typed copy, including staff biographies and attachments describing syndicated research, are being sent separately.

I look forward to talking to you and others at Andersen in more detail on these proposals.

Sincerely,



Thomas O'Flaherty
Vice President



A PROPOSAL

**IDENTIFICATION OF FUTURE SUCCESSFUL
APPLICATIONS SOFTWARE MARKETS**

Submitted to

ANDERSEN CONSULTING

June 18, 1992

Submitted by

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
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I. BACKGROUND

Andersen Consulting wishes to identify the applications software markets that are most likely to be successful over the next five to ten years.

II. SCOPE

A. Definitions

INPUT has applied the following definitions/working assumptions :

- Size of offering: \$100,000 or more generally purchased at one time; no platform or other limitations; tailoring or customizing expenditures not included as a factor.
- Focus is on opportunities for new or significantly enhanced products.
- Segments must meet annual unit sales minimums (approximate); ground rules will be established based on estimated investment and growth parameters.
- The most emphasis will be placed on segments with market discontinuities (see Exhibit I for a summary of potential discontinuities).
- Steady-state applications areas will receive a lower priority even if replacement sales are high; the assumption is that these markets will be much harder to break into, unless Andersen is already established there.
- A preliminary assessment will be made of the competitive environment, but this will not be a determining factor.
- Approximately 20 opportunities will be identified. (Rationale: Andersen currently assesses approximately 10 software investment opportunities annually; twenty represents a two year pipeline.)
- Factors affecting the U.S. market are the most important; however, there should also be a European dimension to the analysis. The impact, if any, in the Japanese market should also be commented on.



B. Issues To Be Addressed

The primary issue is: What are 20 of the leading opportunity areas for software investment?

Subsidiary issues, which should be addressed for each opportunity area, cover the rationale for an opportunity and include some or all of the following:

- How does the software opportunity relate to general business issues and changes affecting the segment?
- How closely linked is a particular software opportunity area to other software areas? Some areas, e.g., logistics management, are closely tied to both horizontal and vertical applications (see Exhibit 2 as an example).
- In general, how does an opportunity map against the "discontinuity" factors?

III. CONDUCT OF THE WORK AND METHODOLOGY

A. General Approach

INPUT will rely on its ongoing syndicated research (the Market Analysis Program - material attached for both the U.S. and Europe) to serve as a foundation for this project. However, the bulk of the value-added analysis for this project will come from the collective experience of INPUT's professional staff.

The work will be conducted in two steps, starting with a coarse screen of opportunities, followed by the detailed assessments.

B. Conduct of the Work

INPUT will be briefed by Andersen, either at a meeting or by telephone. INPUT believes that it would be very useful that Andersen indicate new products and product enhancements already committed to. This will greatly assist in deciding where opportunities lie in areas where no near term discontinuities are expected.

INPUT will then prepare an extensive list of candidate opportunity areas (probably 40 or 50). Each candidate area will have a short description including the following:



- Identifying title (e.g., travel management software for businesses)
- A short paragraph describing its functions
- Industry(ies) covered
- Closely-related applications
- Discontinuities

These will be reviewed with Andersen at an all-day work session at INPUT's New Jersey office. In the course of this work session opportunities may be added or dropped to this list.

INPUT will then conduct a more in depth analysis to identify the critical factors for success. These factors will include:

- An assessment of overall market size and growth, with business-related rationales, especially market discontinuities foreseen.
- An assessment of Andersen's opportunity, given its current position in this or related markets. This will include order of magnitude annualization of unit sales and build-up, where appropriate.
- Customer needs and values.

INPUT will review these findings with Andersen and then prepare the final assessment on approximately 20 opportunity areas. At this point INPUT expects an opportunity to fall into one of these areas:

- A classic vertical application appealing to a particular industry or, more likely, a niche in an industry.
- A basically horizontal application with some vertical flavor (e.g., financial planning and reporting)
- A horizontal application with distinct industry variations (e.g., multi-media sales support)
- An application in a new technical setting that creates additional customer value or benefits (e.g., client/server-based branch automation).

INPUT expects that its final work product will consist of its analysis and recommendations for each of the 20 opportunity areas.

INPUT would be available for further detailed research or discussion with Andersen, but this work is not contemplated within this proposal.



IV. QUALIFICATIONS

INPUT is highly qualified to conduct this study.

INPUT's work in vertical and horizontal information services gives INPUT a unique foundation of data and insight (see the material on the Market Analysis Program for both the U.S. and Europe). This will enable INPUT to start quickly and efficiently.

The INPUT staff assigned to this project will bring a great deal of industry and software product experience to the project. The core project team will be from INPUT's New Jersey office and will consist of Thomas O'Flaherty, Vice President, and John McGann, Principal Consultant. In addition, Peter Lines and Roger Fulton from INPUT's European office and Tetsuo Imai of INPUT's Tokyo office will contribute from their geographic perspectives. Peter Cunningham, President, and Dennis Wayson, Vice President, will provide overall review and quality control. Their biographies are attached. Other INPUT staff will be involved in this project as needed.

V. SCHEDULE

<u>Week</u>	<u>Task</u>
1	Meet with Andersen; review Andersen; review criteria
2	INPUT prepares initial scan of market opportunities
3	Work session in New Jersey
4	INPUT conducts in-depth analysis
6	INPUT prepares final report



VI. FEES

INPUT's professional fee for the study will be \$20,000.

One-half of INPUT's professional fee for the study is due and payable upon authorization of the study; the remainder at the time of the presentation of results.

Out-of-pocket expenses (telephone, production, and travel) are in addition to the professional fees and will be billed at cost. INPUT does not expect these to exceed 10% of the professional fee (\$2,000).

INPUT can begin work within two weeks of project authorization. This proposal will remain valid for thirty days, unless extended in writing. Andersen Consulting can initiate the study by providing authorization in the blocks provided below.

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AUTHORIZED BY:
Andersen Consulting

ACCEPTED BY:
INPUT

Name

Name

Title

Title

Date

Date



Exhibit 1

CHANGES AFFECTING SOFTWARE PRODUCT SALES

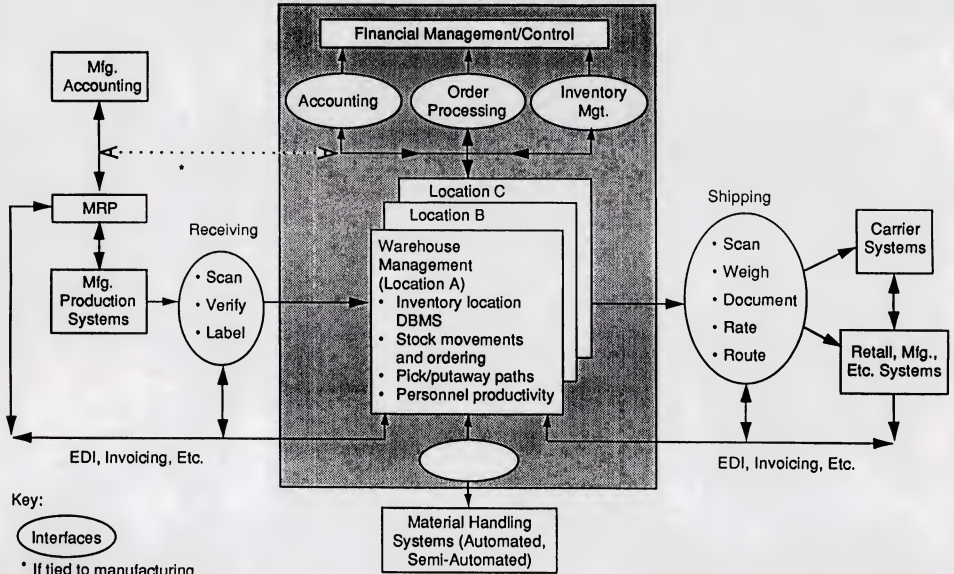
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Exhibit 2

Logistics Management System and Interfaces





A PROPOSAL

**PROJECTING AREAS OF GROWTH
FOR VERTICAL APPLICATION SOFTWARE**

Submitted to

ANDERSEN CONSULTING

June 18, 1992

Submitted by

INPUT

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 - New applications (where packaged solutions did not exist or where a particular solution is new for an industry)
- Target, steady-state market share for a software product, with two major variables: Several major players, no major player.
- Market entry build-up for an existing company, for a new application area as well as a next generation of a current application.

Andersen has indicated that these scenarios may be modified in developing the approach or in the course of the study. Andersen has indicated that it is open to other models or scenarios, as long as the scenarios above are covered.

The results will be used globally, but analysis covered in this proposal will be largely focussed on the U.S. The analysis should focus on products where a single sale is typically large (i.e., over \$100,000) and sold to large companies or divisions of large companies. Either traditional unitary mainframe products or suites of products (e.g., in the client/server environment) would qualify.

Andersen has requested that INPUT prepare this proposal indicating how INPUT would address this set of issues.



II. SCOPE

In the course of this study, the following issues should be addressed and answered:

- Is there a single model (or series or related models) which would describe the life of the typical software product and/or market?
- To the extent that there are different phases in the product life cycle, what factors would affect the "build-up" as opposed to the "steady-state" parts of cycles? How much do purchase rates differ, depending on which part of the cycle a product (or market) is in?
- Besides identifying these factors, what is the relative importance of individual factors, or groups of factors?
- How does the market share potential differ, depending on the state of the software product cycle? What other factors affect this?
- What are the major distinctions in new entry build-up, depending on whether a totally new application or an application "enhancement" for the same prospect set is involved?
- How well do these models track against actual customer behavior in the past? And future intentions?

III. CONDUCT OF THE WORK AND METHODOLOGY

INPUT will explain both the conceptual foundations of its approach as well as how INPUT would actually conduct the work.

A. Concept

Product life cycles are well-known, beginning with introduction and ending with decline. Software is different in several respects:

- Software never "wears out" (although users may often wish that it did)
- More importantly, software products (and software product groups) do not necessarily decline but often renew themselves during periods of "discontinuities". This process is illustrated schematically in Exhibit 1.



Changes in demand can occur because of changes in product characteristics or in the external business or technical environments. An important set of factors is whether these changes are systemic or organization-specific.

- If systemic, then these can give rise to a new product; or, where there is an existing set of products, there may be a discontinuity -- new vendors will be more able to compete and the identity of leading vendors may change.
- Organization-specific changes, on the other hand, are less likely to occur in many organizations simultaneously and would usually be responsible for product change in the less intense steady state.
- Exhibit 2 illustrates the differences that are likely to be causative factors in the build-up and steady-state phases. One of the key issues in the research phase is to place at least approximate weights on these. This would make it easier to classify both markets and product proposals along the cycle continuum.

INPUT believes that new applications and enhanced applications inhabit different parts of the model, as hypothesized in Exhibit 3. Research would confirm/modify and quantify this.

Similarly, INPUT believes that market share scenarios differ, depending on the phase in the software cycle (Exhibit 4). Research would also be needed to confirm/modify and quantify these statements.

INPUT would perform research and analysis to clarify and quantify the conceptual approach described above. INPUT expects that the real-world research will modify or expand some of the details above as well as flesh out the model.

B. Conduct of the Work

INPUT is proposing a study that will have three mutually reinforcing components:

- Interviews with large U.S. companies (\$100 million in revenues or equivalent per company or operating unit)
- Tracking of vendor rankings in selected categories over the last ten years.
- Case studies of selected vendors/products



1. Customer Interviews

INPUT will interview 150 U.S. companies on their significant application plans:

- "Significant" = \$100,000 plus investment
- This includes software products, in-house development or vendor-developed custom software.
- Enhancements are included where planned and budgeted as a significant item and will not include ongoing maintenance.
- The time scale will be from 1980 (or as far back as is reliably known) to as far in the future as is reliably known)

The purpose will be to develop an application census (divided into major categories) and, most importantly, to identify what the most important reasons were for making changes. The reasons would be developed from the list in Exhibit 2.

When the analysis is completed, the following information will be available:

- Purchase rates for stimulated, normal and new applications.
- Relative importance of the individual factors in, for example, business change vs. regulatory stimulation.
- Differences between horizontal vs. industry-specific applications as a class.
- An assessment as to the importance of individual industries.

INPUT recommends that 150 telephone interviews be conducted, broken out into five industries. INPUT recommends the following industries as being varied and likely to cover a range of experience:

- Retail banking
- Property/casualty insurance
- Discrete manufacturing
- Packaged goods (in process manufacturing)
- State/local government

These markets could be replaced by others by mutual agreement. INPUT believes that a mix and variety of markets are essential.

INPUT would draft the questionnaire for Andersen review and conduct interviews using INPUT staff; Andersen would not be identified as the client in any public research. INPUT would perform the analysis, prepare and present a presentation in overhead transparency format and deliver the presentation in Chicago. After receiving feedback, INPUT would prepare a written report.



2. Track Vendor Shares

To confirm and supplement the interview research, INPUT would track leading vendor shares for a product or product group in each of the five markets listed above

INPUT would use the data for markets and vendors which it has tracked since 1974, supplemented by direct inquiry to vendors and other data. Andersen would not be identified as the client.

These would be correlated with the findings of the interview study and presented at the same time.

3. Case Studies

As a further correlation, INPUT would select, in consultation with Andersen, 5 to 10 products to be analyzed. This analysis would include: Sales/sites, product changes, competitive reaction.

INPUT would use the data for markets and vendors which it has tracked since 1974, supplemented by direct inquiry to vendors and other data. Andersen would not be identified as the client.

These would be correlated with the findings of the interview study and presented at the same time.

4. Summary

Much of this work can be done in parallel (see "Schedule", below).

INPUT believes that this methodology will provide a very strong method of "triangulation" to identify the most important factors that Andersen will be apply to apply to product and market opportunities.

IV. INPUT'S QUALIFICATIONS

INPUT believes that it is uniquely qualified to assist Andersen in this project.

INPUT has been actively tracking software markets and vendors since 1974. Reports and backup is retained for at least ten years for project such as this. Descriptions of the Market Analysis Program and Vendor Analysis Program are attached.



INPUT is very experienced in conducting special studies such as this one. Many of these studies involve original research and analysis to supplement its program information. INPUT conducts over 100 such special studies annually.

Last, and not least, INPUT understands software markets and the software industry. INPUT has consulted to many of the leading software products companies internationally.

The project will be directed by Thomas O'Flaherty, Vice President. He will be assisted by John McGann, Principal Consultant and Joanne Ponnwitz, Associate Consultant. Review and quality control will be provided by Dennis Wayson, Vice President. Their biographies are attached. Other INPUT staff will be drawn on as required.

V. SCHEDULE

<u>Week</u>	<u>Task</u>
1	Meet with Andersen; develop questionnaire
2	Begin interviewing; collect data for market share and case studies
3	Teleconference with Andersen
4	End interviewing
5	Analyze information (from interviews, market share and case studies)
6	Prepare presentation
7	Present results
8	Prepare written report



VI. FEES

INPUT's professional fee for the study will be \$37,000.

One-half of INPUT's professional fee for the study is due and payable upon authorization of the study; the remainder at the time of the presentation of results.

Out-of-pocket expenses (telephone, production, and travel) are in addition to the professional fees and will be billed at cost. INPUT does not expect these to exceed 10% of the professional fee (3,700).

INPUT can begin work within two weeks of project authorization. This proposal will remain valid for thirty days, unless extended in writing. Andersen Consulting can initiate the study by providing authorization in the blocks provided below.

AUTHORIZATION

To authorize the project as specified, please sign and return one copy of this proposal, along with the initial fee. Upon acceptance by INPUT, a countersigned copy of the proposal will be returned to Andersen Consulting.

AUTHORIZED BY:
Andersen Consulting

ACCEPTED BY:
INPUT

Name

Name

Title

Title

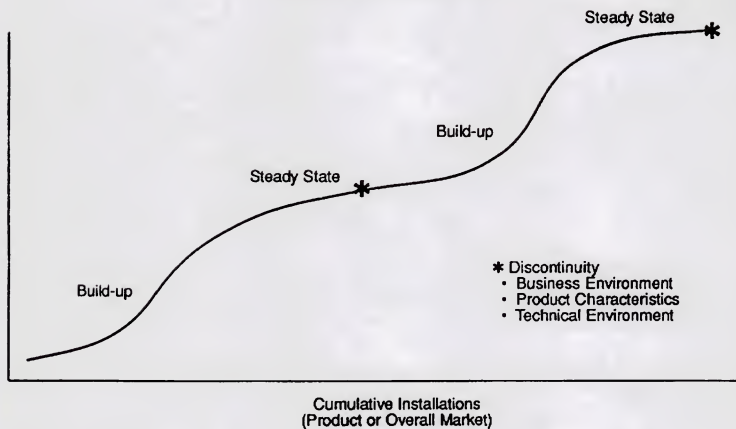
Date

Date



Exhibit 1

Software Product Cycles



Copyright

Exhibit 2

CHANGES AFFECTING SOFTWARE PRODUCT SALES

<u>Changes In:</u>	<u>Phase in Software Cycle</u>	
	<u>Build-up (Systemic Change)</u>	<u>Steady State (Organization- Specific Change)</u>
Business Environment	<ul style="list-style-type: none">• Regulations• General Economy	<ul style="list-style-type: none">• Corp. Profitability• Reorganization (Acquisition)
Product Characteristics	<ul style="list-style-type: none">• Industry Requirements• "Need Creation"	<ul style="list-style-type: none">• Corporate Strategy• User Needs• Reaction to Competition
Technical Environment	<ul style="list-style-type: none">• New Platforms (HW/SW)	<ul style="list-style-type: none">• Platform Conversion

Copyright

The first part of the paper discusses the importance of maintaining accurate records of all transactions. It is essential for the company to have a clear and concise record of all financial activities, including sales, purchases, and expenses. This will allow the company to track its performance over time and identify areas for improvement.

The second part of the paper discusses the importance of maintaining accurate records of all assets. This includes both tangible and intangible assets, such as property, equipment, and intellectual property. The company should have a clear and concise record of all assets, including their location, condition, and value. This will allow the company to track its assets over time and identify areas for improvement.

The third part of the paper discusses the importance of maintaining accurate records of all liabilities. This includes both short-term and long-term liabilities, such as accounts payable and loans. The company should have a clear and concise record of all liabilities, including their terms, conditions, and amounts. This will allow the company to track its liabilities over time and identify areas for improvement.

The fourth part of the paper discusses the importance of maintaining accurate records of all equity. This includes both common and preferred equity, as well as any other equity interests in the company. The company should have a clear and concise record of all equity, including the names of the equity holders and the amounts of their investments. This will allow the company to track its equity over time and identify areas for improvement.

The fifth part of the paper discusses the importance of maintaining accurate records of all income and expenses. This includes both operating and non-operating income and expenses, as well as any other income and expenses. The company should have a clear and concise record of all income and expenses, including the dates, amounts, and descriptions of each transaction. This will allow the company to track its income and expenses over time and identify areas for improvement.

The sixth part of the paper discusses the importance of maintaining accurate records of all taxes. This includes both federal and state taxes, as well as any other taxes. The company should have a clear and concise record of all taxes, including the amounts, dates, and descriptions of each payment. This will allow the company to track its taxes over time and identify areas for improvement.

The seventh part of the paper discusses the importance of maintaining accurate records of all other financial information. This includes any other financial information that the company may have, such as bank statements, credit card statements, and insurance policies. The company should have a clear and concise record of all other financial information, including the dates, amounts, and descriptions of each transaction. This will allow the company to track its other financial information over time and identify areas for improvement.

Exhibit 3

MARKET ENTRY DYNAMICS

<u>Phase in Software Cycle</u>			
<u>Market Entry Options</u>	<u>Initial Build-up</u>	<u>Steady State</u>	<u>Discontinuity Build-up</u>
New Application	Typical	Rare	Often Occurs
Application Enhancement	Application Spin-off	Incremental Improvements	Next Generation

Copyright



Exhibit 4

MARKET SHARE DYNAMICS

<u>Market Share Factors</u>	<u>Phase in Software Cycle</u>		
	<u>Initial Build-up</u>	<u>Steady State</u>	<u>Discontinuity Build-up</u>
Many Players (No Dominance)	Typical	Rare	New Players Entry
Several Dominant Players	Rare	Typical	New Leaders May Emerge

Copyright



Presentation of Results

**IDENTIFICATION OF FUTURE "BEST BET"
APPLICATIONS SOFTWARE MARKETS
and
DEVELOPING A "YARDSTICK" TO MEASURE
SOFTWARE PRODUCTION OPPORTUNITIES**

Prepared for:

ANDERSEN CONSULTING

August 13, 1992

Prepared by:

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, New Jersey 07666

201-801-0050
Fax: 201-801-0441

Per TOF 9/8

Do not have
~~bound~~
yes.



AGENDA

I. Introduction

Study Objectives

Software cycle hypotheses

II. "Yardstick"

Customer research findings

Market share issues

Application ramp-up

III. "Best Bets"



I. INTRODUCTION



OBJECTIVES

"Yardstick"

- **Develop purchase rate profiles**
- **Develop market share targets**
- **Understand market entry build-up**
- **Understand market behavior generally as well as segment variation**

"Best Bets"

- **Obtain from an informed, independent source assessments of applications software opportunities with a 5-10 year time horizon.**

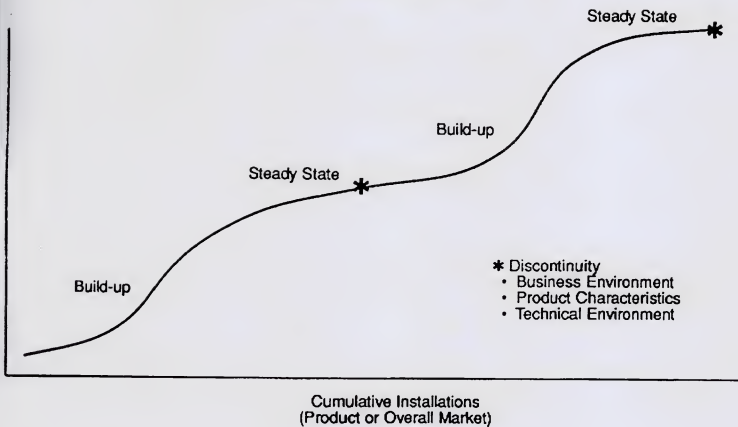


SOFTWARE CYCLE HYPOTHESES

- **Repeated build-ups and steady states**
- **Systemic versus organization-specific drivers**
- **Market entry**
- **Market share**



Software Product Cycles





CHANGES AFFECTING SOFTWARE PRODUCT SALES

<u>Changes In:</u>	<u>Phase in Software Cycle</u>	
	<u>Build-up (Systemic Change)</u>	<u>Steady State (Organization- Specific Change)</u>
Business Environment	<ul style="list-style-type: none">• Regulations• General Economy	<ul style="list-style-type: none">• Corp. Profitability• Reorganization (Acquisition)
Product Characteristics	<ul style="list-style-type: none">• Industry Requirements• "Need Creation"	<ul style="list-style-type: none">• Corporate Strategy• User Needs• Reaction to Competition
Technical Environment	<ul style="list-style-type: none">• New Platforms (HW/SW)	<ul style="list-style-type: none">• Platform Conversion



MARKET ENTRY DYNAMICS

Phase in Software Cycle

Market Entry
Options

Initial
Build-up

Steady
State

Discontinuity
Build-up

New Application

Typical

Rare

Often Occurs

Application
Enhancement

Application
Spin-off

Incremental
Improvements

Next
Generation

Copyright



MARKET SHARE DYNAMICS

Phase in Software Cycle

<u>Market Share Factors</u>	<u>Initial Build-up</u>	<u>Steady State</u>	<u>Discontinuity Build-up</u>
Many Players (No Dominance)	Typical	Rare	New Players Entry
Several Dominant Players	Rare	Typical	New Leaders May Emerge

Copyright



II. YARDSTICK

YNSWR

INPUT



"YARDSTICK" RESEARCH

- **Interviews with corporations: mission critical applications**
 - **Package versus custom use**
 - **Age: all, packaged**
 - **Replacement cycles: historic, changes**
 - **Importance of new applications**
 - **Switching: custom to package**
 - **End user role in selection process**
 - **Effect of quality initiatives**
 - **Differential impact of segmentation (industry, customer size)**

- **Examination of market share change**
 - **In selected verticals**
 - **Product group examples**

- **Product ramp-up rates: vendor experience**



INDUSTRY RESEARCH

<u>Industry</u>	<u>Large</u>	<u>Medium</u>	<u>TOTAL</u>
Food Processors	18	13	31
Utilities	<u>14</u>	<u>22</u>	<u>36</u>
TOTAL	32	35	67

- IS Management interviewed
- 190 Applications areas described



EXAMPLES OF COMPANIES INTERVIEWED

LARGE FOOD PROCESSORS

- Pillsbury
- ConAgra
- M&M Mars
- General Foods
- Sunshine Biscuits

MEDIUM FOOD PROCESSORS

- M&M Meat Products
- Zacky Farms
- Singleton Foods
- Gilroy Foods
- Bush Brothers

LARGE UTILITIES

- Northeast Utilities
- Brooklyn Union Gas
- Baltimore Gas & Electric
- Commonwealth Edison
- Southern Company

MEDIUM UTILITIES

- Nebraska Public Power
- Kentucky Power
- Cherokee Electric
- St. Lawrence Gas
- Grand Gulf Nuclear Station



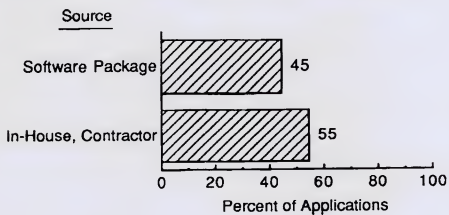
CUSTOMER RESEARCH: MAJOR FINDINGS

- **Almost half of current mission-critical applications use software packages.**
 - **Significant variation by segment**
 - **About a quarter of packages replaced a custom application**
- **Over half of mission-critical applications are new.**
- **Pure "replacement rate" is on a ten-year cycle (10%)**
- **Recent installations have been at twice that rate; rate may increase**
- **User role is significant, and growing**
- **Quality initiatives have varying effects**



A-1

Source of Current Mission-Critical Applications

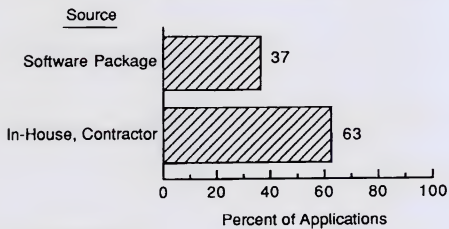


N = 190 Applications

- Medium utilities much more likely to use packaged software



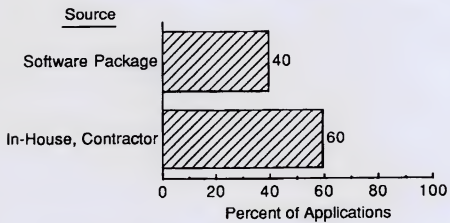
**Source of Current Mission-Critical Applications
(Large Food Processors)**



N = 46 Applications

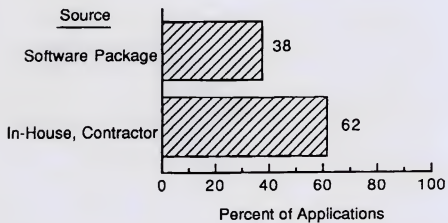


**Source of Current Mission-Critical Applications
(Medium Food Processors)**



N = 40 Applications



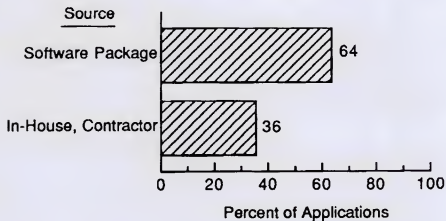
**Source of Current Mission-Critical Applications
(Large Utilities)**

N = 45 Applications



A-5

**Source of Current Mission-Critical Applications
(Medium Utilities)**



N = 59 Applications



REASONS FOR CHOOSING CUSTOM SOFTWARE

- **Specialized application ("Peanut")**
- **Application must fit into established environment (technical and/or business process)**
- **"Couldn't find the package."**



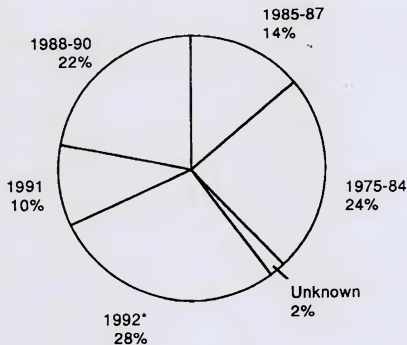
REASONS FOR CHOOSING PACKAGED SOFTWARE

- **Time**
- **Cost**
- **Known quantity**
- **Features**
- **Emerging: technical environment**



B-1

Year of Installation of Current Mission-Critical Applications



N = 190 applications

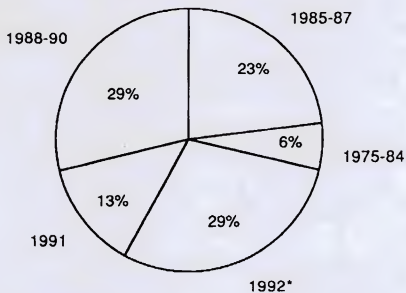
- Medium utilities have very old applications

*Includes applications close to completion



B-2

**Year of Installation of Current Mission-Critical Applications
(Large Food Processors)**



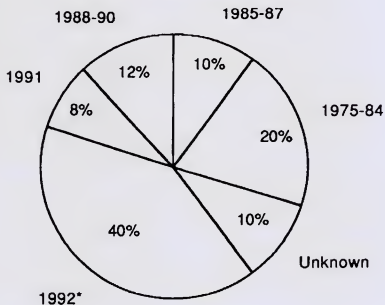
N = 46 applications

*Includes applications close to completion



B-3

**Year of Installation of Current Mission-Critical Applications
(Medium Food Processors)**



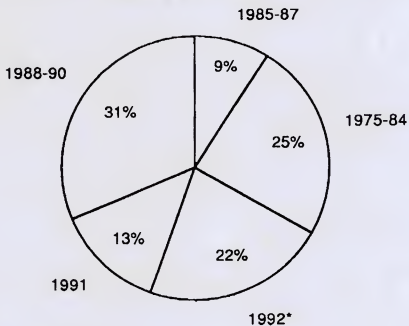
N = 40 applications

*Includes applications close to completion



B-4

**Year of Installation of Current Mission-Critical Applications
(Large Utilities)**



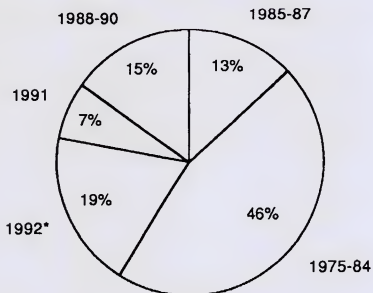
N = 45 applications

*Includes applications close to completion



B-5

**Year of Installation of Current Mission-Critical Applications
(Medium Utilities)**

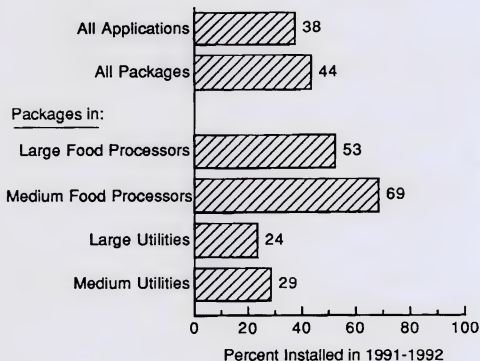


N = 59 applications

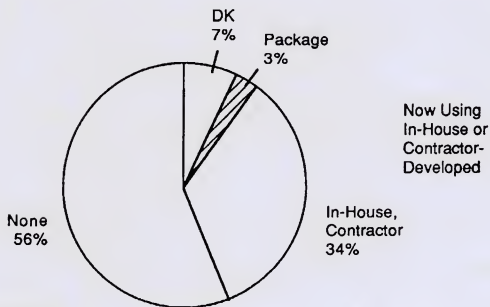
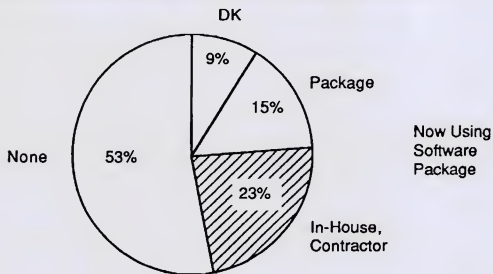
*Includes applications close to completion




**Mission-Critical Applications Installed in 1991-1992:
Software Packages by Segment**





Prior Sources of Mission-Critical Applications

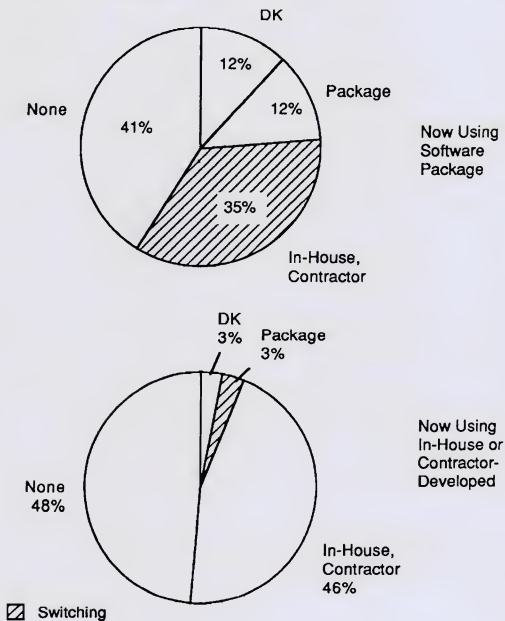
 Switching

N = 190 applications

• Significant differences between food processors and utilities



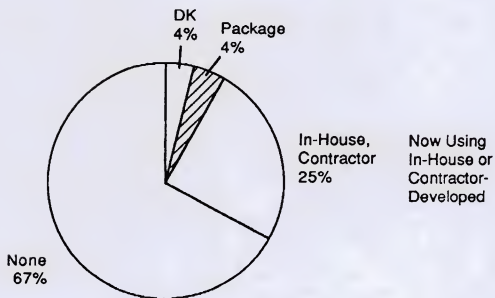
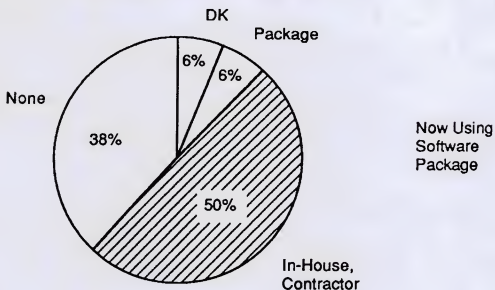
**Prior Sources of Mission-Critical Applications
(Large Food Processors)**





E-3

**Prior Sources of Mission-Critical Applications
(Medium Food Processors)**

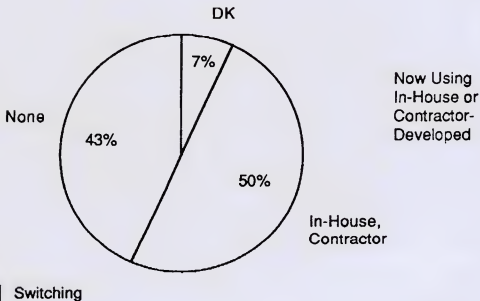
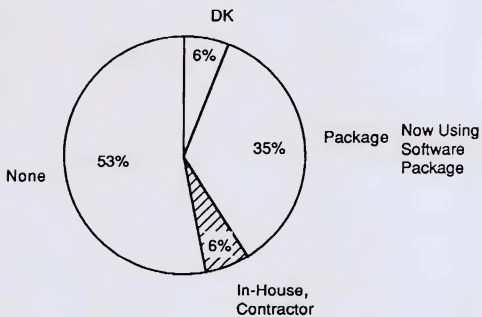


 Switching



E-4

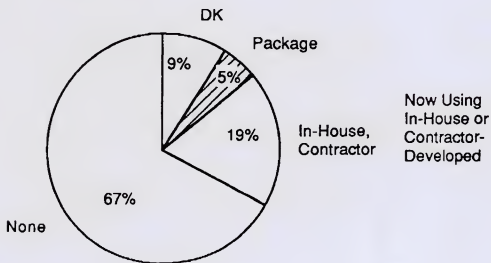
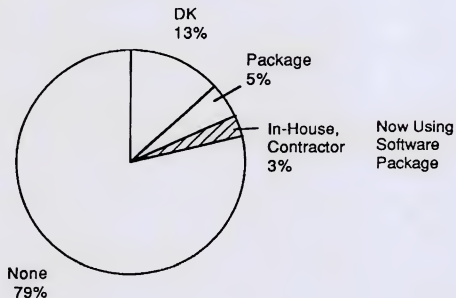
**Prior Sources of Mission-Critical Applications
(Large Food Processors)**





E-5

**Prior Sources of Mission-Critical Applications
(Medium Utilities)**

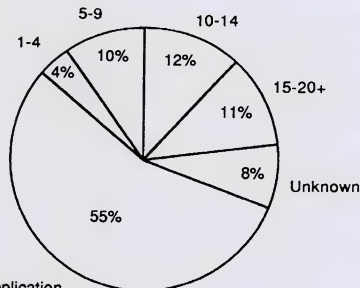


☒ Switching



C-1

**Mission-Critical Applications'
Age in Years at Time of Replacement**



New Application

N = 190 applications

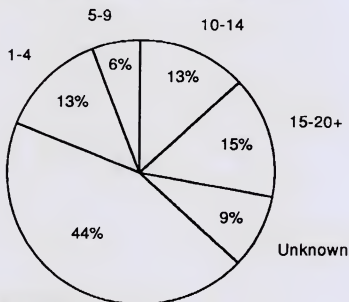
Median = 10 years

- Over half are "new" applications
- 40% of new applications were installed since 1990



C-2

**Mission-Critical Applications'
Age in Years at Time of Replacement
(Large Food Processors)**



New Application

N = 46 applications

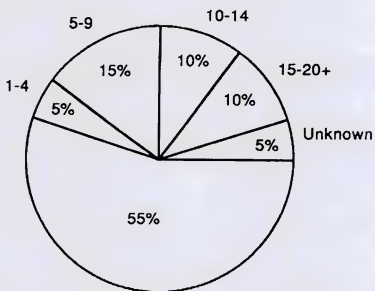
Median = 10 years

- 65% of new applications were installed since 1990



C-3

**Mission-Critical Applications'
Age in Years at Time of Replacement
(Medium Food Processors)**



New Application

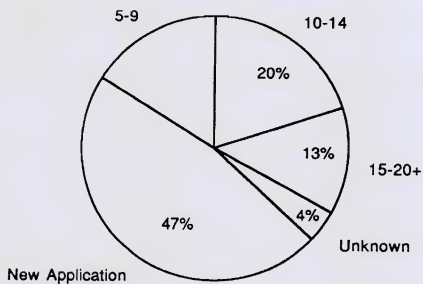
N = 40 applications

Median = 9 years

- 27% of new applications were installed since 1990



**Mission-Critical Applications'
Age in Years at Time of Replacement
(Large Utilities)**



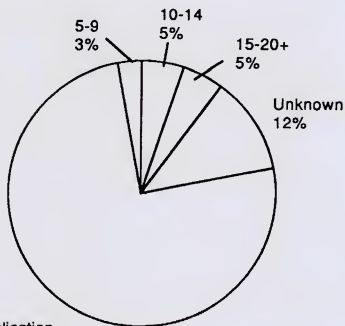
N = 45 applications

Median = 12 years

- 48% of new applications were installed since 1990



**Mission-Critical Applications'
Age in Years at Time of Replacement
(Medium Utilities)**



New Application
75%

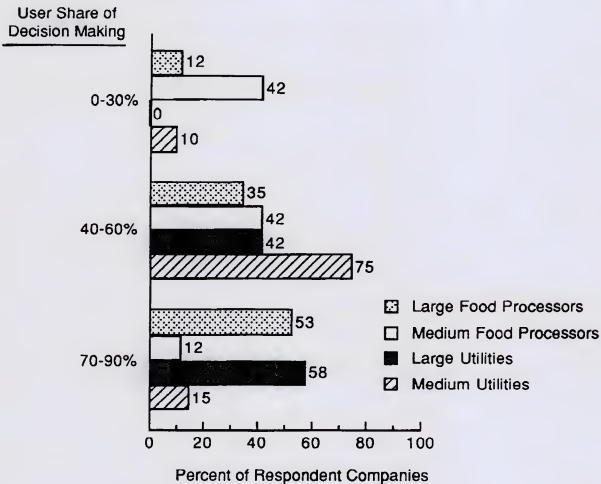
N = 59 applications
Median = 10 years

- Large proportion of "new" related to higher than average very old applications
- 20% of new applications were installed since 1990



F

End-User Decision-Making Authority in Replacing Applications Software



N = 67 companies

- Users have more authority in larger companies



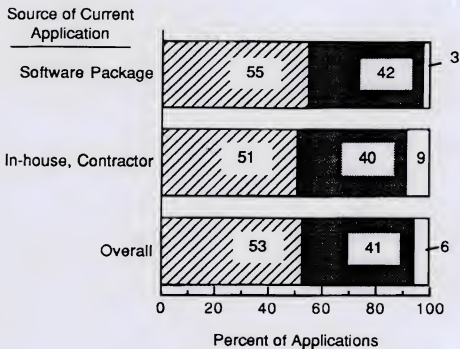
REASONS FOR LARGER FIRMS' USERS BEING MORE ACTIVE
(from other studies)

- **Many user departments in large firms have reached critical mass**
 - **"Mini IS" departments**
 - **Computer literate**
 - **Transfers from IS**
- **Bureaucratic nature inhibits IS-user communications**
- **Large firms IS departments more likely to be locked into MVS and maintenance**



G-1

Role of a Quality Initiative in Selecting Current Mission-Critical Applications



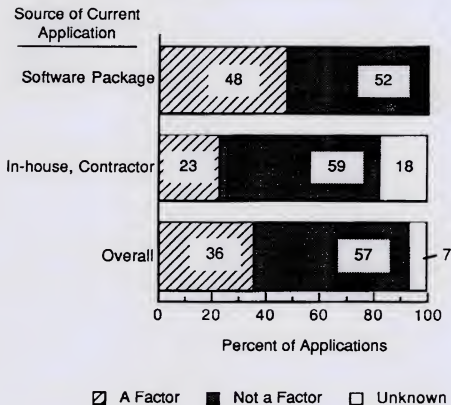
▨ A Factor ■ Not a Factor □ Unknown

N = 190 applications

- Averages cancel striking differences between larger and smaller firms in motivations to use packages

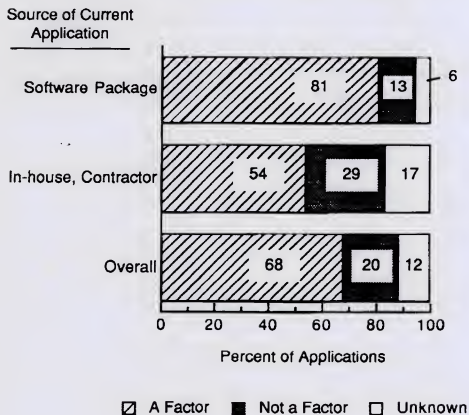


**Role of a Quality Initiative in
Selecting Current Mission-Critical Applications
(Large Food Processors)**





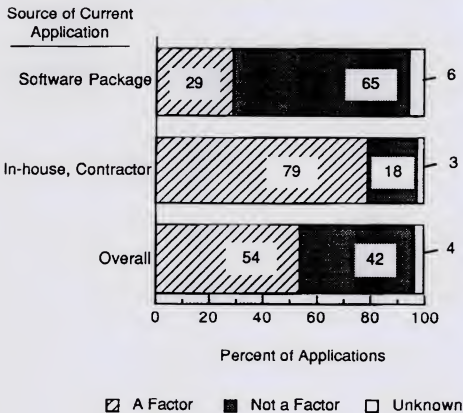
**Role of a Quality Initiative in
Selecting Current Mission-Critical Applications
(Medium Food Processors)**





G-4

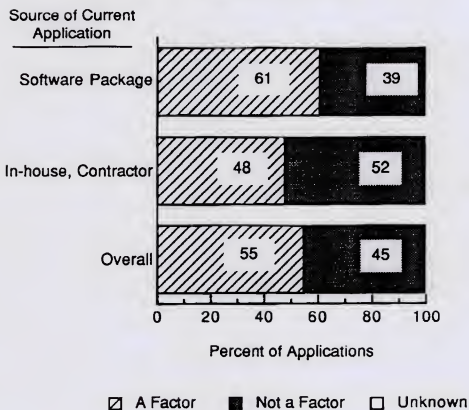
**Role of a Quality Initiative in
Selecting Current Mission-Critical Applications
(Large Utilities)**





G-5

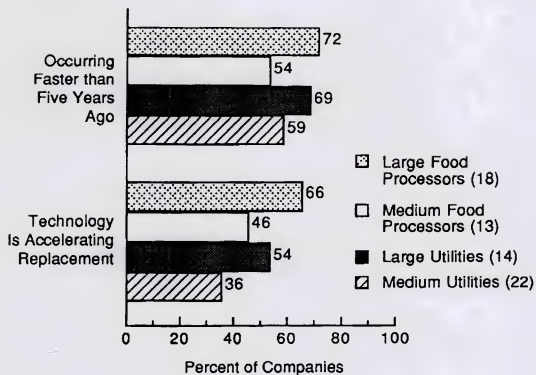
**Role of a Quality Initiative In
Selecting Current Mission-Critical Applications
(Medium Utilities)**





D

Application Replacement



N = 67 companies; number in each group in parentheses

- Increased rate generally repeated; somewhat higher in large companies
- Technology more of an accelerant in larger companies



REPLACEMENT RATE

- "Replacement" rate: ten (10) year cycle
- But: half of new applications are not replacements, but new.
 - New business function
 - Pulling together older systems
 - Pulling together parts of older systems
 - New technology platforms (emerging)
- Actual systems installation rate is twice the "replacement rate" (i.e., over 20%)
- But, segment variation is as important as average installation rate.
 - Driven by end users
 - IS plans becoming less useful



MARKET SHARE ISSUES



BANKING SOFTWARE MARKET SHARE ISSUES

- The banking software market appeared to be heading toward concentration in the early and mid-1980s as vendors brought out comprehensive banking systems (UCCEL, Cullinet, IBM/Hogan). However, these comprehensive systems gained remarkably little headway. Most players are niche players now.
- There are several reasons for this:
 - Users became more important as banks decentralized. User departments wished to maximize the effectiveness of their individual departments. In many banking environments, comprehensive plans that had been previously agreed to became impossible to execute.
 - Associated with this was the loss of power and budgets of IS departments, who had often been the primary supports of the comprehensive approach.
 - The actual products themselves, while comprehensive, weren't comprehensive enough. The larger banks often found that the products did not offer enough options or were not flexible.
 - A vicious circle arose, where the customers began to question the vendors' commitment and orders slowed down. These were contributory reasons for UCCEL and Cullinet being sold to CA (and important reasons for CA slowing investment significantly.)
- Outsourcers (IBM, EDS, Systematics) have proved to be an alternative to packaged comprehensive systems so far in the 1990s. It is not yet clear if outsourcers can be effective in a client/server environment.
- The banking market is going through a further evolution of this change where client/server architectures are seen as being more suitable to department-oriented systems.



BANKING: 1987 AND 1991 MARKET SHARES

1987			1991	
Rank	Name	Share	Rank	Share
1	IBM	8%	1	5%
2	Unisys	6	3	2
3	NCR	5	2	3
4	SEI	3		*
5	Kirchman	3	6	2
6	Computer Associates	3	10	1
7	CIR	2		*
8	AMS	2	4	2
9	M&I	2	11	1
10	Cullinet	2	a	a
11	CDC	1	b	b
12	Systematics	1	13	1
13	Mellon	1		*
14	FIData	1		*
15	Hogan	1	12	1
16	Stockholder Systems	1		*
17	DEC	1	7	2
18	D&B Software	*	5	2
19	AGS	*	9	2
20	EDS	*	8	2
	SCS Compute	*	14	1
	Logica	*	15	1
	Shared Financial	*	16	1
	Sterling	*	17	1

* = Under 1% a = Acquired by Computer Associates b = Exited



ANALYSIS OF COMPUTER ASSOCIATES BANKING SOFTWARE

- CA entered the banking applications software business in 1987 when it acquired UCCEL, primarily for UCCEL's systems software. CA acquired Cullinet in 1989, again, primarily for its systems software business, but gaining a key player in the banking software business. (Earlier in the 1980s Cullinet had determined that growth lay in using its IDMS database product as the foundation for different applications products.)
- UCCEL and Cullinet together had had a 5% share of the market, a share surpassed only by the historic banking products of three systems companies (IBM, Unisys and NCR). By 1991, however, this share had shrunk to 1%. Why?
 - The products were incompatible. Cullinet's may have had more promise, since Cullinet had only recently finished a two year development effort to update its own acquired software. However, Cullinet's required additional investment to match UCCEL's features; CA decided to support current customers, but not to actively market the Cullinet product.
 - The UCCEL product was somewhat older and needed investment also, which was not always forthcoming.
- The CA sales force knew how to sell systems software but not applications software. CA was not able to maintain an effective dedicated sales force.
 - Most importantly, the market was not responding as well to very large comprehensive products. Instead, as banks decentralized and IS departments lost their clout, it was increasingly difficult to find prospects.
- CA has essentially gone into the harvest (maintenance) phase in its banking products.



PROPERTY/CASUALTY SOFTWARE MARKET SHARE ISSUES

- P&C software market has been highly concentrated for over ten years.
- PMS is only vendor which now offers a comprehensive P&C system; other players are niche players, mainly in providing applications linking insurers and agents.
- PMS is the only significant survivor of at least eight vendors offering similar mainframe-based systems into the early 1980s
- Reasons for consolidation:
 - No significant technical platform changes through the 1980s
 - Perceived need for comprehensive system
 - PMS pricing strategy locked customers into expensive maintenance contracts; competitors priced too low to support ongoing improvements.
 - Coming out of the insurance industry, PMS was somewhat closer to understanding market needs.



PROPERTY/CASUALTY SOFTWARE: MARKET SHARES

1987			1991	
Rank	Name	Share	Rank	Share
1	Policy Management Systems	32%	1	31%
2	Maryland Casualty (a)	7	6	2
3	Redshaw/Delphi (b)	6	2	6
4	Agena	6	3	5
5	Insurelink	5	7	2
6	Insurance Data Processing	4	4	3
7	Heritage	3	8	2
8	EDS	2	9	1
9	ISI	2	5	3

a: Maryland Casualty bought Insurance Systems of America (ISA) P&C insurance business in 1984. It later spun off the agency software business into a new subsidiary called Leader Systems (est. revenue \$8 million) and sold the original ISA software to Cedar Rapids Software Services (est. software revenue \$2 million).

b: Delphi acquired Redshaw and McCracken in 1991.



ANALYSIS OF THE PMS P&C INSURANCE SOFTWARE POSITION

- PMS had already established itself as the leader in revenues by 1980, although not yet in number of installations.
 - The PMS strategy was always to obtain large (\$500,000 to \$2 million) initial contracts on seven year licenses with obligatory maintenance.
 - This gave PMS the funds necessary to expand its product in the course of the 1980s into all P&C areas.
 - By approximately 1988, PMS had over 75% penetration of companies who were large enough to afford their package and were not committed to custom systems.
 - Several insurance companies with equally comprehensive applications tried to market their systems in the mid-1980s, but by then most potential customers were already locked into PMS.
- In the mid-1980s PMS recognized that growth was limited in supplying software products to P&C companies. Up to that time, virtually all of its revenues came from software products or initial installation charges. Since then PMS has diversified into supplying professional services and supplying data base information for the P&C industry and related businesses. Less than a quarter of PMS' revenue now comes from software licenses (as opposed to maintenance) and much of this comes from prior year sales, due to the nature of their business practices.
- The PMS product is excellent in its own way, but is very complex and inflexible. It represents many of the weaknesses of the traditional mainframe way of doing business, even with a sound product.
- IBM took a minority position in PMS in 1989. One of the results of this has been a joint PMS-IBM effort to develop a new generation of distributed applications. There has already been about \$50 million invested in this project. Results are not yet evident. It is not clear if the correct technology choices were made at the beginning of the new development process. PMS customers have been locked into PMS up to now and their satisfaction is mixed.



APPLICATION RAMP-UP



**Applications Software Products
Revenue Ramp-Up Record/Assumptions**

Vendor	Product	Ramp-Up Period	Comments
Macola Software	Accounting (Client/Server)	1987-1990	\$10 million in 1990
PeopleSoft	Human Resources (Client/Server)	1989-1992	Profitable in 1992; success partly based on resemblance to Integral Software product (lawsuit in progress)
SAP (U.S.)	Manufacturing	1988-1990	\$15 million (Note: Needed 3 years even with European reputation and many U.S. subsidiaries as customers)
Computer Associates	Applications generally	Assume 4 year ramp-up to pay off	
Systematics	Banking	Assume 3 years to widespread acceptability	Note: Systematics can guide customers to a greater extent than can many pure software firms



RAMP-UP: "TOUCH AND FEEL"

- **Critical issue: seeing it work**
- **The larger the product, the more important the issue**
- **Faster ramp-up:**
 - **Familiarity with similar product**
 - **Same product on another platform**
 - **Same product in another geography**
 - **Joint development with customers**
 - **Board of advisors (secondary)**



III. BEST BETS



"BEST BET" PARAMETERS

- **Customer size: \$100 million plus**
- **Software sale: \$100,000 plus**
 - **Can include multiple copies, as in a client/server environment.**
 - **Associated professional services and customizing not included.**
- **A steady state sales rate of \$25 million in the U.S. was established as a general cut-off.**
- **"Discontinuity" factors given special weight.**
- **Established competition not reason for exclusion, but commented on**
- **Clustering around industry groups was viewed as positive.**
- **Certain sectors were rejected (see exhibit).**



"BEST BET" IDENTIFICATION PROCESS

- **Brief memo sent to ten senior INPUT staff members providing background and parameters.**
- **Opportunity profile sheets included.**
- **Over 50 nominations received; each was discussed and reviewed with nominators.**
- **Approximately 30 were reviewed with Andersen on July 30.**
- **Twenty-seven are presented here.**



"BEST BET" SECTOR REJECTIONS

<u>Sector</u>	<u>Reason for Rejection</u>
Oil and Gas Exploration	Business decline (medium term)
Construction	Business decline (medium term)
Aerospace and defense industries; government defense	Business decline (long term)
Government (general)	Few packaged opportunities
Transportation companies	Few large buying entities
Professional firms	Few large buying entities



Exhibit (Code)

BEST BETS SCREEN: (Title)

DESCRIPTION

(Text)

INDUSTRY(IES)/NICHES

PURCHASE POINT

(Title)

RELATED APPLICATIONS

DISCONTINUITIES

OTHER FACTORS

(e.g., special opportunities for consulting)

APPROXIMATE MARKET SIZE AFTER TAKEOFF

(Total U.S. market size in millions)



"BEST BETS": OPPORTUNITY INDUSTRY GROUPS

		<u>Number</u>
•	Banking (B)	2
•	Insurance (I)	5
•	Manufacturing (M)	9
•	Retail (R)	4
•	Travel (T)	2
•	Utilities (U)	2
•	Cross-industry (X)	<u>3</u>
	TOTAL	27



Exhibit B-1

BEST BETS SCREEN: Personal Banking Manager

DESCRIPTION

Cash Management Account (CMA) pushed further down market. Less emphasis on securities investor, more on bank products, mutual funds, insurance.

INDUSTRY(IES)/NICHS

- 500 - 1,000 banks, possibly some smaller brokers

PURCHASE POINT

- Vice president of branch banking

RELATED APPLICATIONS

- Demand deposit systems
- High level CMA

DISCONTINUITIES

- Increased consumer banking focus
- Back-door entry to securities business

OTHER FACTORS

- Competition from established vendors

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit B-2

BEST BETS SCREEN: Decentralized Risk-Assessment System

DESCRIPTION

Assesses the increase or decrease in risk that results from changes made to financial systems, e.g., software changes, dollar limits, controls.

INDUSTRY(IES)/NICHES

- Financial Institutions
(banking, brokerage, insurance)

PURCHASE POINT

- Controller
- Financial planning
- Department heads

RELATED APPLICATIONS

- Other applications are the subject of this one (e.g., trading, funds management, commercial/property loans).

DISCONTINUITIES

- Reorganization (Consolidation and/or decentralization)
- Increased control and risk-adverseness

OTHER FACTORS

- Now largely ad-hoc and manual
- Combine with consulting

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 - 100 million



Exhibit I-1

BEST BETS SCREEN: Property/Casualty Insurance Rating/Quotation

DESCRIPTION

Provide more cost/effective policy rating and quotation.

INDUSTRY(IES)/NICHES

- Property/Casualty insurance companies

PURCHASE POINT

- Vice president of operations
- Vice president of marketing
- Vice president of information systems

RELATED APPLICATIONS

- Policy administration

DISCONTINUITIES

- Mainframe applications obsolete/burning out
- PC-based applications stop gap and obsolete
- Increased user involvement

OTHER FACTORS

- Policy Management Systems competition
- Opportunity for AI/rule-based foundation

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit I-2

BEST BETS SCREEN: Property/Casualty Insurance Policy Administration

DESCRIPTION

Replacement for mainframe systems, with greater flexibility and user control.

INDUSTRY(IES)/NICHES

- Property/casualty insurance companies

PURCHASE POINT

- Vice president of operations
- Vice president of information systems

RELATED APPLICATIONS

- Rating/quotation

DISCONTINUITIES

- Aging mainframe applications are obsolete
- Mainframe-based CASE has not solved problems
- Increased competition; significant cost pressures

OTHER FACTORS

- Policy Management Systems competition from future systems
- Significant opportunities for tailoring

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit I-3

BEST BETS SCREEN: **Life Insurance Policy Issuance and Administration**

DESCRIPTION

Replace mainframe systems with greater flexibility and user control.

INDUSTRY(IES)/NICHES

- Life insurers

PURCHASE POINT

- Vice president of operations
- Vice president of Information Systems

RELATED APPLICATIONS

DISCONTINUITIES

- Aging mainframe applications are obsolete
- Mainframe-based CASE has not solved problems
- Significant pressures to reduce cost of doing business

OTHER FACTORS

- Significant opportunities for tailoring
- Several established players

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit I-4

BEST BETS SCREEN: Health Insurance Administration

DESCRIPTION

Replace health insurance administration

INDUSTRY(IES)/NICHES

- Insurance (Life insurance divisions; Blue Cross)

PURCHASE POINT

- Vice president of operations/claims processing
- Vice president of information systems

RELATED APPLICATIONS

DISCONTINUITIES

- Potential major changes in health care financing legislation and regulation
- Client/server technology

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$100 million plus



Exhibit I-5

BEST BETS SCREEN: Health Benefit Administration/Managed Care

DESCRIPTION

For employees that manage health insurance and/or self-funding. Track experience; link to third party administrators, HMO's, health insurers.

INDUSTRY(IES)/NICHES

- All, especially major corporations

PURCHASE POINT

- CFO

RELATED APPLICATIONS

- Tie into HMO management
- Health care data bases
- Health care cost control consulting
- Health insurance administration

DISCONTINUITIES

- Health care cost inflation
- Legislative change (financing, health care options)

OTHER FACTORS

- Tie into health care cost control consulting
- Potential for broad systems-related consulting

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$500 million⁺ (all related services)



Financial Industry: Applications Commonalities

Applications	Insurance	Banking	Brokerage
Trading		X	X
Retail Deposit		X	Large Accounts
Money Management (Wholesale, Retail)	X	X	X

- Almost no other functional commonalities across sectors
- Distinctions persist even in "freed" European environment



Banking and Insurance Subsectors

Functional Segment	Approximate Number of Firms by Size		
	Large	Medium	Small
Commercial Banks/Thrifts	30	300	15,000
Life Insurers	25	200	500
Property/Casualty Insurers	25	200	500
Health Insurers	20	200	2,000

- Numbers are orders of magnitude
- Each cell has strikingly different needs



Exhibit M-1

BEST BETS SCREEN: Country of Origin Tracking

DESCRIPTION

Tracks composition of products that are from "other" countries; includes components, subassemblies, labor and other factors, and materials.

INDUSTRY(IES)/NICHES

- Manufacturing, especially discrete and foreign branches
- U.S. companies
- Tailoring for specific verticals

PURCHASE POINT

- CEO/COO
- CFO
- Vice president of manufacturing

RELATED APPLICATIONS

- MRP
- Accounting

DISCONTINUITIES

- Politics, legislation
- Tariff and non-tariff barriers

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$100 million plus



Exhibit M-2

BEST BETS SCREEN: Product Management System

DESCRIPTION

Integrate market research, R & D development, product tracking, medical advertising data, promotion data. Multi-media product for product/brand managers.

INDUSTRY(IES)/NICHES

- Manufacturing, especially consumer goods

PURCHASE POINT

- Vice president of marketing
- Product/brand management

RELATED APPLICATIONS

- Syndicated market research data (e.g., D&B, IRI)

DISCONTINUITIES

- Technology: Multi-media data bases, workflow management
- Conflicts between manufacturers and retailers

OTHER FACTORS

- Additional consulting opportunities

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit M-3

BEST BETS SCREEN: Advanced Logistics

DESCRIPTION

Comprehensive logistics system: Focuses on financial impact of inventory, transportation and warehousing systems.

INDUSTRY(IES)/NICHES

- Manufacturing (multiple) and distribution (wholesale and large retail)

PURCHASE POINT

- Functional vice presidents
- CFO

RELATED APPLICATIONS

- Constituent modules (accounting, inventory, warehousing)
- Manufacturing
- Order entry
- Point of sale

DISCONTINUITIES

- Technology (client/server, imaging, EDI, bar code, hand-held computers)
- Cost/service pressures

OTHER FACTORS

- Potential consulting opportunities

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$100 million plus



Exhibit M-4

BEST BETS SCREEN: "Downsized SAP"

DESCRIPTION

Effective client/server version of SAP

INDUSTRY(IES)/NICHES

- Process manufacturing
- Separate versions for chemical, petroleum, pharmaceutical, food and consumer goods

PURCHASE POINT

- CFO
- Vice president of manufacturing

RELATED APPLICATIONS

- Logistics
- Process control
- Order entry

DISCONTINUITIES

- Technology, primarily client/server
- User-driven applications

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$200 million plus



Exhibit M-5

BEST BETS SCREEN: Wait Reduction

DESCRIPTION

Dynamic scheduler to reduce waiting time between processes for multiple assemblies and complex activities.

INDUSTRY(IES)/NICHES

- Discrete manufacturing (multiple)

PURCHASE POINT

- Vice president of manufacturing

RELATED APPLICATIONS

- MRP
- Logistics

DISCONTINUITIES

- Operating unit needs/influence
- Technology (AI, client/server, hand-held computers)

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit M-6

BEST BETS SCREEN: Product Formulation Information System

DESCRIPTION

Rule-based system for lookup on product information and availability; to be used by sales and production functions. Use to compute product costs/supply using alternative formulations. Also supply base-line formulary for specific niches.

INDUSTRY(IES)/NICHES

- Process manufacturing, especially chemical, pharmaceutical, petroleum and food

PURCHASE POINT

- Vice president of marketing
- Vice president of manufacturing

RELATED APPLICATIONS

- Manufacturing
- Logistics

DISCONTINUITIES

- Technology (AI, client/server)
- Competitive pressures

OTHER FACTORS

- "Formulary" database provides ongoing revenue

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million



Exhibit M-7

BEST BETS SCREEN: Pharmaceutical Research Management and Reporting

DESCRIPTION

Captures and maintains R&D information (including optical) in legally approved manner. Generates reports and dry applications.

INDUSTRY(IES)/NICHES

- Pharmaceutical companies and research institutes

PURCHASE POINT

- CEO, vice president of operations (smaller customers)
- R&D director

RELATED APPLICATIONS

DISCONTINUITIES

- Increasing length and cost in drug approval process
- Cost pressures in drug industry
- Technology (optical storage, intelligent imaging)

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million



Exhibit M-8

BEST BETS SCREEN: Advanced MRP

DESCRIPTION

Client/server MRP

INDUSTRY(IES)/NICHES

- Discrete manufacturing (multiple)
- Tailored for major niches

PURCHASE POINT

- Vice president of manufacturing

RELATED APPLICATIONS

- Logistics
- Country of origin
- Order entry
- Shop floor
- Wait reduction

DISCONTINUITIES

- Aging, inflexible mainframe/mini systems
- User control
- Technology (client/server)

OTHER FACTORS

- Potential for consulting

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$500 million plus



Exhibit M-9

BEST BETS SCREEN: Standard Manufacturing Workstation Interface

DESCRIPTION

A standard interface (look-and-feel, common terminology) for providing applications from different sources with some degree of compatibility. Essentially, an intelligent screen-mapping utility.

INDUSTRY(IES)/NICHES

- Manufacturing, (multiple)
- Tailored for major verticals

PURCHASE POINT

- Vice president of information systems

RELATED APPLICATIONS

- Major packages/products used in manufacturing (MRP, accounting, shop floor)
- Could also be tailored to in-house applications

DISCONTINUITIES

- Aging, incompatible applications needing "quick fix"
- Technology (GUI, AI)

OTHER FACTORS

- Level/duration of market need unclear (e.g., if new generation applications take over market quickly)
- Potential vehicle for migrating companies to Andersen products
- Cost of achieving critical mass
- Potential for consulting services

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$25 million plus as standalone product
- \$100 million plus with services
- \$500 million plus as lead-in to other products



Manufacturing: Multiple Segment Opportunities

Manufacturing Segments	Approx. Size (\$B)*	M-1 Country of Origin	M-2 Product Management	M-3 Advanced Logistics	M-4 Downsized SAP	M-5 Wait Reduction
Consumer Goods/ Food	400		X	X	X	
Pharmaceutical	50		X		X	
Chemical	75	X		X	X	
Petroleum	125		X		X	
Other Process	150					
Fabricated	75			X		X
Machinery	100	X		X		X
Electrical	125	X	X	X		X
Auto	250	X	X	X		X
Other Discrete	150			X		X
Wholesale Distribution	2,500			X		

*Some double counting



**Manufacturing: Multiple Segment Opportunities
(cont.)**

Manufacturing Segments	Product Formulation	Pharmaceutical Research	Advanced MRP	Workstation Interface
Consumer Goods/ Food	X			X
Pharmaceutical	X	X		X
Chemical	X			X
Petroleum	X			X
Other Process				X
Fabricated			X	X
Machinery			X	X
Electrical			X	X
Auto			X	X
Other Discrete			X	X
Wholesale Distribution				X



Exhibit R-1

BEST BETS SCREEN: Logistics for Retail Inventories

DESCRIPTION

Provide financial implications and scenarios for stock held in inventory, warehouses, in transit, and at suppliers.

INDUSTRY(IES)/NICHES

- Retail (food, non-food)
- Possible versions for different specialties (e.g., "retail/wholesale")

PURCHASE POINT

- CFO
- Vice president of information systems

RELATED APPLICATIONS

- Accounting
- POS
- Procurement
- EDI

DISCONTINUITIES

- Changing retail business
- Technology (client/server, hand-held computers)

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit R-2

BEST BETS SCREEN: Flexible Couponing

DESCRIPTION

In card transactions, allow store to immediately assess buying record, special sales and other factors to provide rebate, special deal on the spot or future incentives.

INDUSTRY(IES)/NICHES

- Retail
- Versions probably by transaction flow (e.g., retail food vs. appliance)

PURCHASE POINT

- Vice president of marketing
- Vice president of merchandising

RELATED APPLICATIONS

- Merchandising
- Consumer tracking
- POS

DISCONTINUITIES

- Changes in retail business
- AI technology

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit R-3

BEST BETS SCREEN: Retail Grazing

DESCRIPTION

Interactive CD-ROM to allow display browsing and independent and/or assisted purchasing of products

INDUSTRY(IES)/NICHES

- Retail
- Specialty, department stores, jewelry, auto supply, catalog stores

PURCHASE POINT

- Vice president of marketing
- Vice president of merchandising

RELATED APPLICATIONS

- Merchandising
- POS

DISCONTINUITIES

- Changing retail business
- Technology (multi-media)

OTHER FACTORS

- Provide market research data

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit R-4

BEST BETS SCREEN: Restructured Merchandising

DESCRIPTION

Decentralized merchandising planning with accounting and other functions on larger servers and merchandizing functions on clients. Allows a merchandising unit to operate independently as if it were a separate "store".

INDUSTRY(IES)/NICHES

- Retail
- Department and specialty stores

PURCHASE POINT

- CEO (smaller stores)
- Vice president of merchandising

RELATED APPLICATIONS

- Accounting
- POS

DISCONTINUITIES

- Changing retail business
- Technology (client/server)

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$200 million plus



Exhibit T-1

BEST BETS SCREEN: Corporate Travel Management

DESCRIPTION

Provide tools and databases for corporations to manage travel process and expenses: Manage volume discounts with suppliers, control employee travel choices, manage frequent flyer process, manage group travel and internal off-site meetings. Interface with reservation systems and expense claim submissions. Simplify expense reimbursement.

INDUSTRY(IES)/NICHES

- Large corporations with large, complex travel arrangements
- Firms that bill back significant portions of travel to clients

PURCHASE POINT

- CFO

RELATED APPLICATIONS

- Accounting
- Calendaring

DISCONTINUITIES

- Travel expense costs: Outlays, plus expense to manage
- Supplier competition to provide auditable discounts
- Technology (compute power, AI, imaging)

OTHER FACTORS

- Potential for consulting and provision of data

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit T-2

BEST BETS SCREEN: Time-Sensitive Yield Management

DESCRIPTION

Improve on airline techniques to maximize yield on services/products that must be sold by certain dates

INDUSTRY(IES)/NICHES

- Hotels (chains, individual properties)
- Cruises/tours
- Rental services
- Seasonal properties
- Seasonal merchandise

PURCHASE POINT

- Vice president of marketing

RELATED APPLICATIONS

- Accounting

DISCONTINUITIES

- Overcapacity, price competition
- Increased deals with customers
- AI technology

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$?



Exhibit U-1

BEST BETS SCREEN: Transmission Network Utilization Management

DESCRIPTION

CAD-type depiction of network, used for both describing and managing physical changes to distribution system. Used to simulate changes. Integrated with load management.

INDUSTRY(IES)/NICHES

- Utilities (including natural gas, both local distribution and transmission; electric, water, sewer)

PURCHASE POINT

- Operations; planning

RELATED APPLICATIONS

- Operations
- Financial forecasting and analysis
- Supply planning

DISCONTINUITIES

- Increased cost-effectiveness in imaging technology

OTHER FACTORS

- Some installation tailoring

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



Exhibit U-2

BEST BETS SCREEN: Nuclear Reactor Management

DESCRIPTION

System that will rapidly walk operators and supervisors through operation of a system using multi-media and rule based logic to specify each action.

INDUSTRY(IES)/NICHES

- Utilities (electric)

PURCHASE POINT

- Safety/compliance

RELATED APPLICATIONS

- No direct

DISCONTINUITIES

- Increased environmental concerns over nuclear plants
- Increased regulation

OTHER FACTORS

- Finite market due to lack of new construction and decommissioning
- Considerable tailoring required

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$100 million plus



Exhibit X-1

BEST BETS SCREEN: Industry-Specific Accounting

DESCRIPTION

Common accounting modules which can be modified to meet the needs of specific industries. Complex and less complex versions for standalone/smaller organizations.

INDUSTRY(IES)/NICHES

- Most vertical industries
- Decentralized and standalone operations

PURCHASE POINT

- CFO
- Department/division heads

RELATED APPLICATIONS

- Operations

DISCONTINUITIES

- End user control/requirements
- Client/server technology

OTHER FACTORS

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$200 million plus



Exhibit X-2

BEST BETS SCREEN: Sales/Prospect Tracking with GIS Component

DESCRIPTION

Sales/prospect tracking with the ability to reallocate territories and relate individual establishment to a territory. Integrated with a prospect data base.

INDUSTRY(IES)/NICHES

- All large companies with complex sales organizations

PURCHASE POINT

- Vice president of sales and marketing

RELATED APPLICATIONS

- Order entry
- Sales planning, forecasting

DISCONTINUITIES

- Technical (client/server, geographic information systems, hand-held computers)
- Need creation

OTHER FACTORS

- Potential tailoring by industry
- Possible tailoring for individual customers (additional cost)

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$50 million plus



BEST BETS SCREEN: Environmental Management

DESCRIPTION

Tracking and monitoring of actual and potential activities affecting environment. Prepare mandated and other reports. Plan and forecast. Apply for and track appropriate permits.

INDUSTRY(IES)/NICHES

- Manufacturing (all)
- Utilities
- Transportation
- Health care
- Construction
- Mining
- Agriculture

PURCHASE POINT

- CEO
- Division heads
- Compliance managers

RELATED APPLICATIONS

- MRP, factory floor

DISCONTINUITIES

- Regulations
- Lawsuits
- "Green" image

OTHER FACTORS

- Opportunities for related consulting

APPROXIMATE MARKET SIZE AFTER TAKEOFF

- \$500 million plus



SUGGESTED CRITERIA FOR PROCEEDING ON BEST BETS

<u>Criteria</u>	<u>Weight</u>
• Size of opportunity	Medium
• Synergy	
- Andersen markets	Very high
- Product inter-relations	Medium
- Sales efficiency	Medium
• Competition	
- Established	Medium
- Movement toward filling needs	High
• Time to market	High



DETAIL

INPUT



SCHEDULE AND FEE FOR PROPOSALS

**IDENTIFICATION OF FUTURE "BEST BET"
APPLICATIONS SOFTWARE MARKETS
and
DEVELOPING A "YARDSTICK" TO MEASURE
SOFTWARE PRODUCTION OPPORTUNITIES**

Submitted to
ANDERSEN CONSULTING

June 25, 1992

*Copy of proposal
Proposed work sent
to Mr. M. B. 21
C. B. 21
V. B. 21*

Submitted by

INPUT

The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, New Jersey 07666

201-801-0050
Fax: 201-801-0441



SCHEDULE

<u>Week</u>	<u>Task</u>
1	INPUT meets with Andersen in Chicago: review Andersen plans; review criteria. Develop questionnaire.
2	INPUT: interviews; collects data for market share and case studies. Prepares initial scan of market opportunities.
3	Work session in New Jersey on "best bets". INPUT analyzes yardstick information
4	INPUT completes analysis and and prepares presentation
5	Present results in Chicago
6	Prepare written report

FEES

INPUT's professional fee for the study will be \$38,000.

One-half of INPUT's professional fee for the study is due and payable upon authorization of the study; the remainder at the time of the presentation of results.

Out-of-pocket expenses (telephone, production, and travel) are in addition to the professional fees and will be billed at cost. INPUT does not expect these to exceed \$2,000.

INPUT can begin work on July 2. This proposal will remain valid for thirty days, unless extended in writing. Andersen Consulting can initiate the study by providing authorization in the blocks provided below.



AUTHORIZATION

To authorize the project as specified, please sign and return one copy of this proposal, along with the initial fee. Upon acceptance by INPUT, a countersigned copy of the proposal will be returned to Andersen Consulting.

AUTHORIZED BY:

Andersen Consulting

Thomas W. Morrison
Name

Director, Project Planning
Title

7/8/92
Date

ACCEPTED BY:

INPUT

[Signature]
Name

Vice President
Title

July 8 1992
Date



INPUT

Atrium at Glenpointe, 400 Frank W. Burr Blvd., Teaneck, NJ 07666 (201) 801-0050
Fax (201) 801-0441

FAX TRANSMITTAL FORM

Date: July 14, 1992
To: Name: Mr. Thomas Moldauer
Tel./Location: 312-507-8743
Co.: Andersen Consulting
Fax No.: 312-507-2548
From: Joanne Boyle
Subject: Secretary to Tom O'Flaherty

Confidential: Y / N
Urgent: Y / N
Page: 1 of 2
File: Chron
Contact
Other:

Tom O'Flaherty asked me to send you our countersigned
authorization form. Please let me know if I can be of
further assistance.

cc: [unclear]



INPUT®

Atrium at Glenpointe, 400 Frank W. Burr Blvd., Teaneck, NJ 07666 (201) 801-0050
Fax (201) 801-0441

FAX TRANSMITTAL FORM

Date: 9/10
To: Name: Tom Moldauer
Tel./Location: x 8743
Co.: Andersen Consulting
Fax No: 312 507 2548 0510#
From: Tom O'Flaherty
Subject: Presentation

Confidential: Y / N
Urgent: Y / N

Page: 1 of 24
File: Chron
Contact
Other:

Will send hard copy overnight

Wisor



PROJECT WORK STATEMENT

TITLE Develop Software Yardstick & Best Bet

CLIENT Andersen Consulting

CONTRACT: ATTACHED See TO FOLLOW _____ LETTER _____ VERBAL _____

PROJECT LEADER TJR PROJECT CODE _____

DATE STARTED July 15 92 PLANNED COMPLETION DATE Aug 30 92

LEVEL OF EFFORT (Professional Man Days) 24

DISTRIBUTION

CONTRACT FILE

LIBRARY FILE

NEW JERSEY

INPUT LTD.

Originator _____

TOTAL CONTRACT VALUE: \$ or £ 38,600

REVENUE DISTRIBUTION (% or \$) INPUT US 100 INPUT LTD _____

REIMBURSABLE EXPENSES: NO _____

YES X

EXP. BUDGET 2,000

TO COVER: TRAV: ✓
TELE: ✓
RPT. PREP.: ✓
OTHER: _____

BILLING SCHEDULE DESCRIPTION 1/2 + 1/2 (fully billed 8/16)

SHEILA (V&Z on

BINDER COPY

Date Typed _____

PROJECT DESCRIPTION ① To develop prediction of proposed software product success & time to payoff ② To propose 12 new software products, based on INPUT expertise

INDICATE TYPE OF WORK: REPORT _____ PRESENTATION X Work session X

THANK YOU PACKAGE: YES X NO _____

ACCOUNTING USE ONLY: ENTERED ON CURRENT PROJECT LIST _____

INPUT



11

Week

Proj. Name:

Andersen - Best Bet

Prepared by:

R/R

Date:

$$12 \times 1.6 = 19.2$$

691



PROJECT SCHEDULE

Activity	Name	Act. Days	Factor	ESD	Week													
					1	2	3	4	5	6	7	8	9	10	11	12	13	14
Yardstick																		
Meet/Questions				1	1													
60 Int @ 875 = 84.5k					←	→												
Analyses				2		1	1											
Prepare per				2			1	1										
Mkt Share																		
Leadon - 2x1				2	1	1	1											
Proble 5x1				2	1	1	1											
Presentation				1				1										
TOTAL PLAN SR.																		
TOTAL PLAN RA																		
TOTAL PLAN ESDs																		

Proj. Code:

Proj. Name:

Andersen

Yardstick (+ Best Bets)

Prepared by:

TOP

6/26

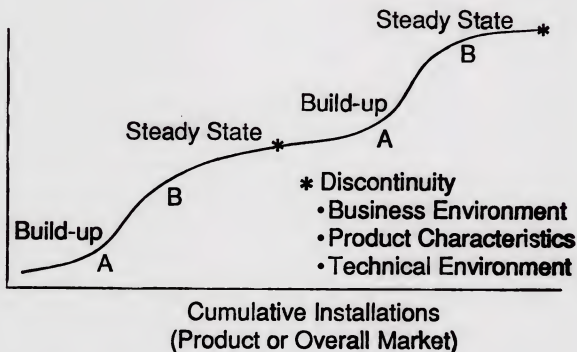
$$1115 \times 1.6 = 1784 + 19 = 35.5 + 4.5 = 439k$$



	-Person Days-				Year-			
	Actual	September ESMD	Accomplish	Plan	Actual	ESMD	Accomplish	Plan
BUDGET	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0
58 Galvan, Terry	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
100 D'Flaherty, Tom	0.9	0.9	0.9	0.0	9.2	9.2	10.6	0.0
414 Ponnwitz, Joanne	0.0	0.0	0.0	0.0	2.4	1.8	1.8	0.0
483 Goff, Chase	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
506 McGarr, John	0.0	0.0	0.0	0.0	6.6	6.6	6.6	0.0
598 Roman, Debra	0.0	0.0	0.0	0.0	4.1	2.1	2.1	0.0
809 Norman Temporaries	0.0	0.0	0.0	0.0	3.1	3.1	1.5	0.0
20 Research	0.9	0.9	0.9	0.0	25.5	22.8	22.7	32.0
441 Wade, Calvin	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.0
452 Nguyen, Lynette	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0
559 Boyle, Joanne	0.9	0.0	0.0	0.0	0.9	0.0	0.0	0.0
599 Trabucco, Anna	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
809 Norman Temporaries	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
60 Research Production Support	1.7	0.0	0.0	0.0	3.8	0.0	0.0	0.0
559 Boyle, Joanne	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
616 Norman TemporariesVOID	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70 General Administration	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
YN-SWR Custom -	2.6	0.9	0.9	0.0	30.1	22.8	22.7	32.0

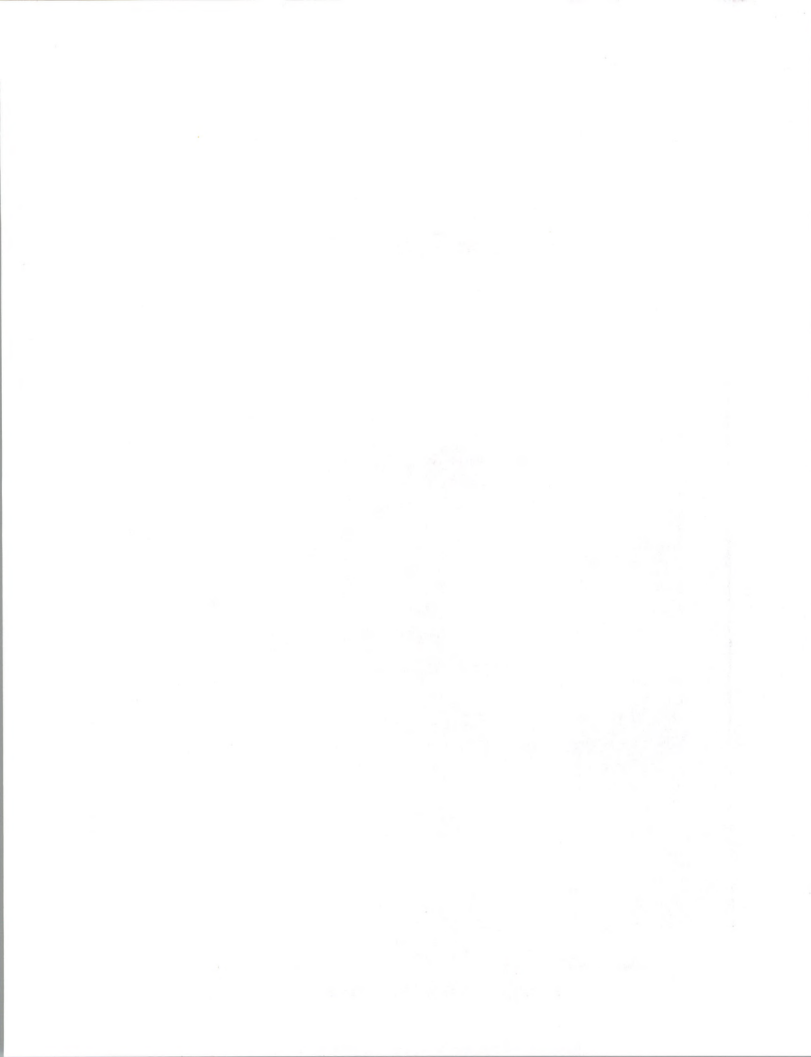


Software Product Cycles

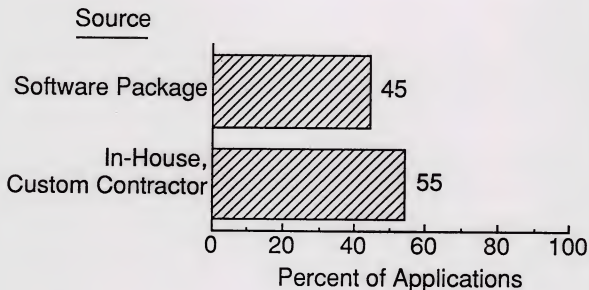


A - New Applications

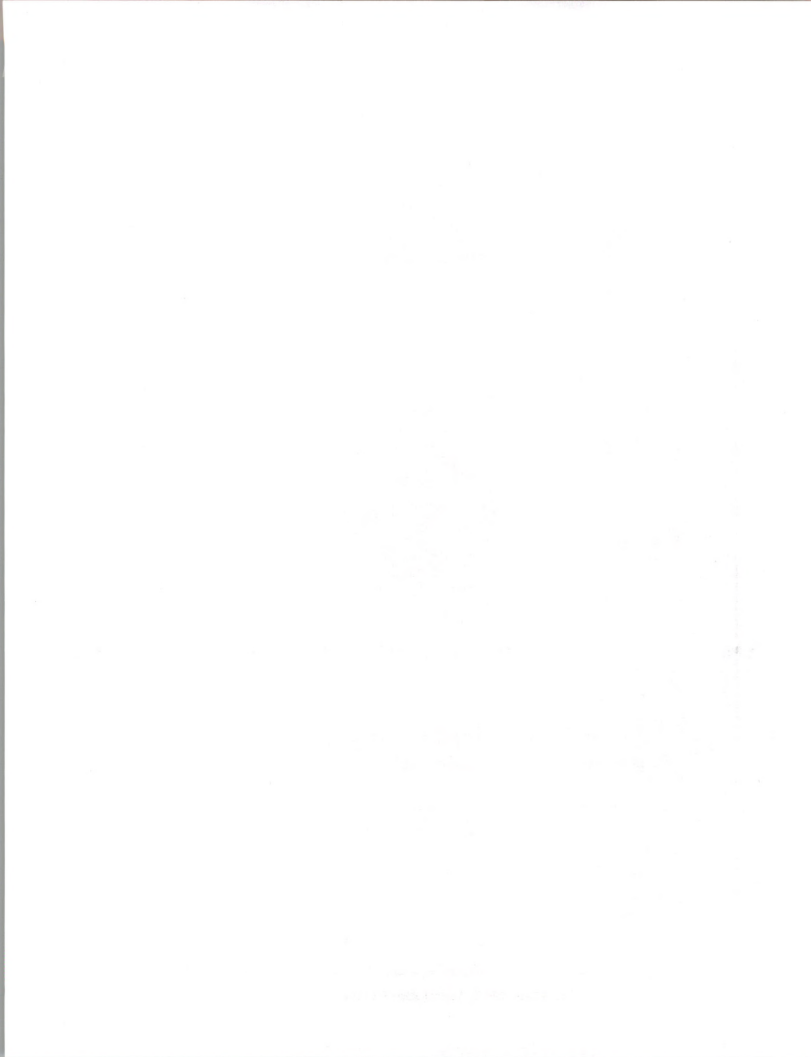
B - Enhancements



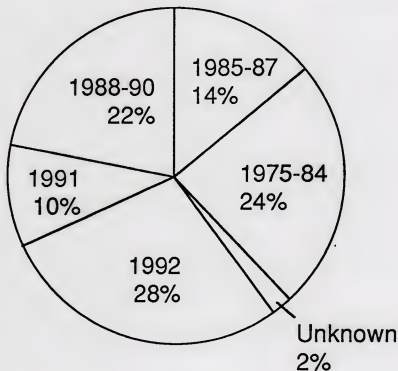
Almost Half of Mission-Critical Applications Use Software Packages



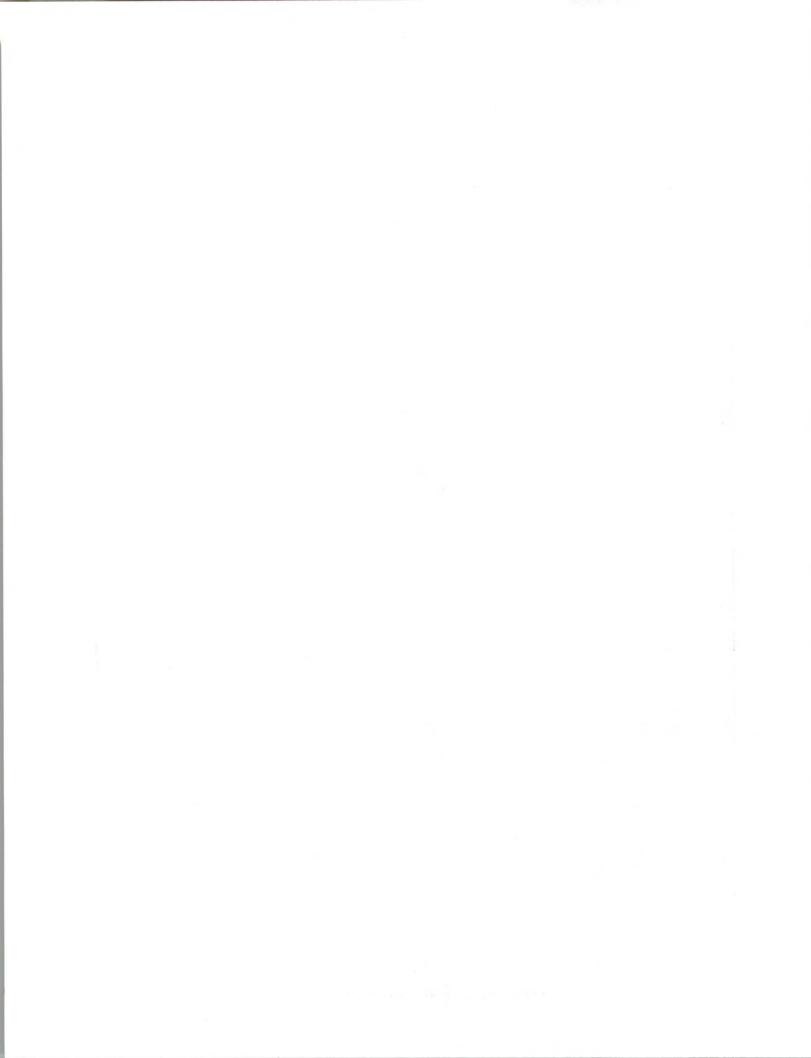
- Exception: Medium-sized utilities are much more likely to have installed packaged software.



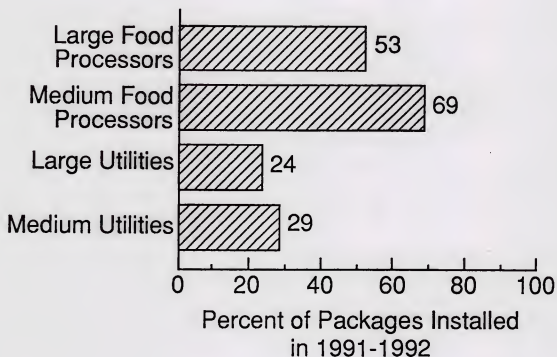
Over One-Third of Mission-Critical Applications Are Less Than Two Years Old



- This indicates an acceleration in the installation of mission-critical applications.
- "1992" includes applications close to completion; this may overstate 1992 figures somewhat by overlapping with 1993.

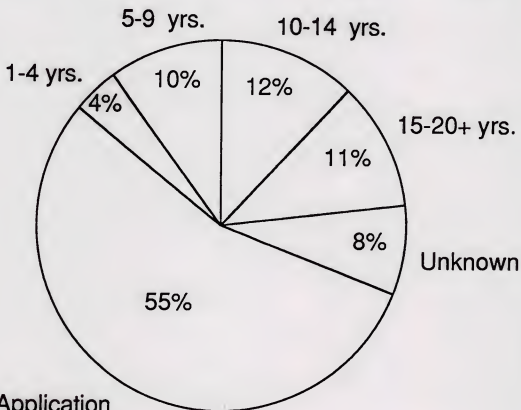


Food Processors are Even More Likely to be Installing Packages





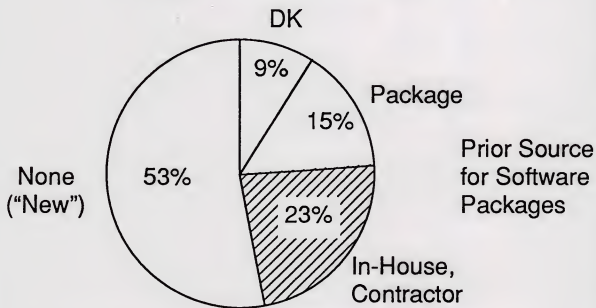
The Age of Replaced Application Is Less Important than the Preponderance of "New" Applications



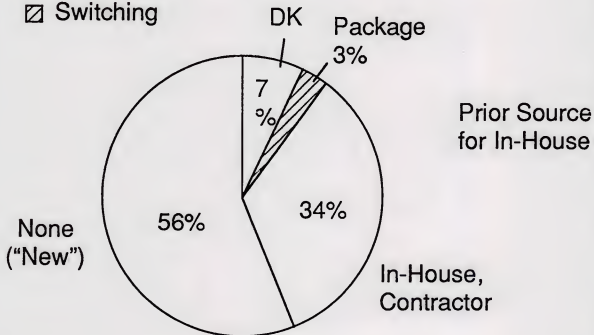
- Median replacement cycle of ten years for existing applications
- But a majority of current mission-critical applications are new, i.e.,
 - Re-engineered business function
 - Automation of manual function (less common in more recent applications)
 - Combining several prior applications (in whole or in part)
 - Application on a new platform which causes significant changes
- 40% of "new" applications were installed since 1990

The first part of the paper discusses the importance of the study of the history of the United States. It is argued that the study of the history of the United States is essential for a full understanding of the country and its people. The second part of the paper discusses the importance of the study of the history of the world. It is argued that the study of the history of the world is essential for a full understanding of the world and its people. The third part of the paper discusses the importance of the study of the history of the United States and the world. It is argued that the study of the history of the United States and the world is essential for a full understanding of the United States and the world.

Application "Switching" Is Usually in One Direction



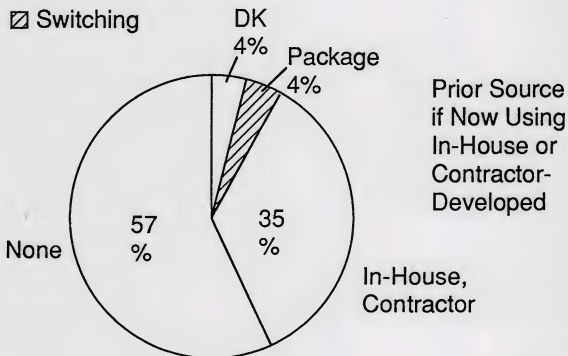
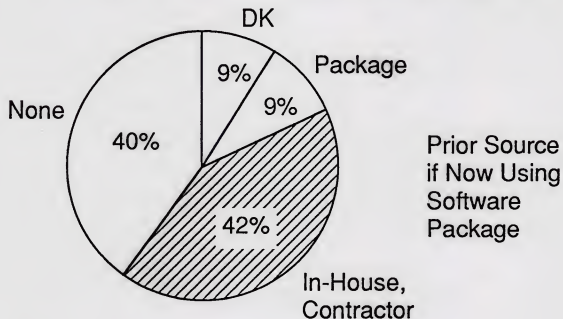
▨ Switching



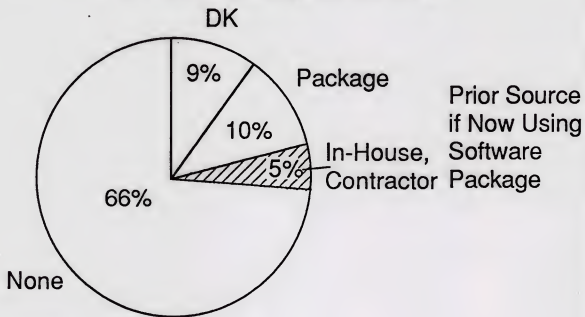
• However, there are significant variations by industry



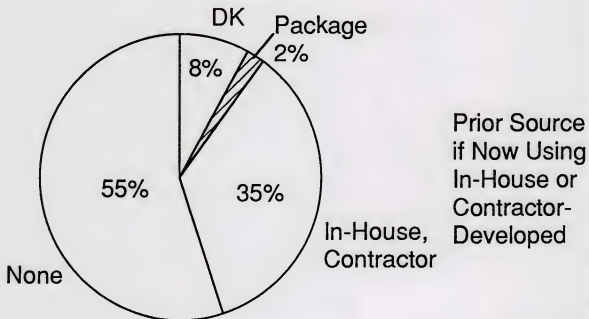
Switching From Custom To Packaged Software Is Common In The Food Processing Industry



Switching From Custom To Packaged Software Is Uncommon In The Utility Industry



☐ Switching



Applications Software Products Revenue Ramp-Up Record/Assumptions

Vendor	Product	Ramp-Up Period	Comments
Macola Software	Accounting (Client/Server)	1987-1990	\$10 million in 1990
PeopleSoft	Human Resources (Client/Server)	1989-1992	Profitable in 1992; success partly based on resemblance to Integral Software product (lawsuit in progress)
SAP (U.S.)	Manufacturing	1988-1990	\$15 million (Note: Needed 3 years even with European reputation and many U.S. subsidiaries as customers)

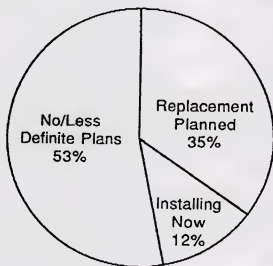


Applications Software Products Revenue Ramp-Up Record/Assumptions (Cont.)

Vendor	Product	Ramp-Up Period	Comments
Computer Associates	Applications generally	Assume 4 year ramp-up to pay off	
Systematics	Banking	Assume 3 years to widespread acceptability	Note: Systematics can guide customers to a greater extent than can many pure software firms



**Replacement Status for Priority Applications
Plant Operations**

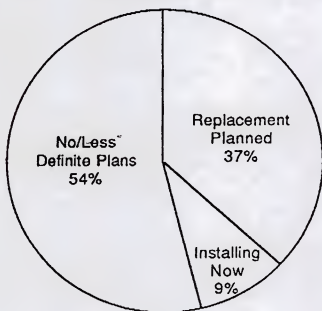


N = 43

INPUT



**Replacement Status for Priority Applications
All Applications**

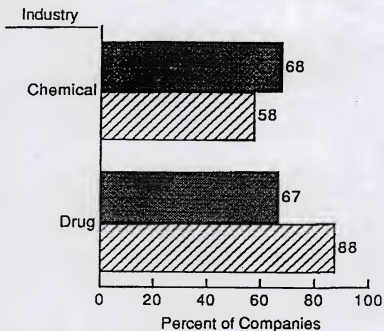


N = 191

INPUT



Percent of Companies Citing Customer Service as a Priority Application



Size: ■ \$100 Million - \$1 Billion

▨ Over \$1 Billion

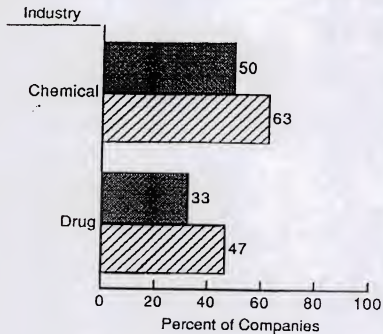
Unweighted average: 70%

Source: Surveys of 83 chemical and drug companies/divisions

INPUT



**Percent of Companies Citing Environmental, Health,
Safety, and Training as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

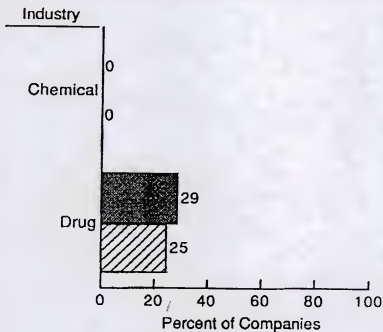
▨ Over \$1 Billion

Unweighted average: 48%

Source: Surveys of 83 chemical and drug companies/divisions



**Percent of Companies Citing Sales
and Marketing as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

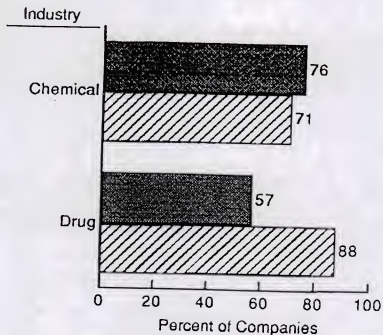
▨ Over \$1 Billion

Unweighted average: 14%

Source: Surveys of 83 chemical and drug companies/divisions



**Percent of Companies with Increased
Rate of Application Change/Replacement
in Last Five Years**



Size: ■ \$100 Million - \$1 Billion

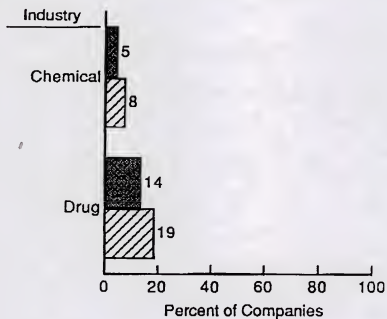
▨ Over \$1 Billion

Unweighted average: 73%

Source: Surveys of 83 chemical and drug companies/divisions



**Percent of Companies Citing Distribution
as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

▨ Over \$1 Billion

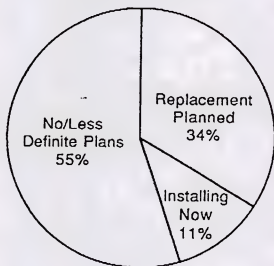
Unweighted average: 12%

Source: Surveys of 83 chemical and drug companies/divisions

INPUT



**Replacement Status for Priority Applications
Customer Service**

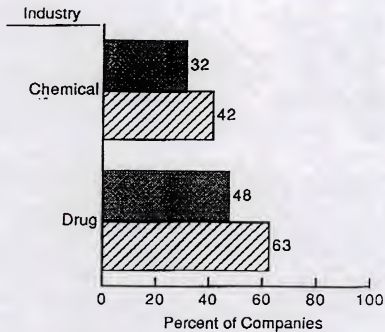


N = 38

INPUT



**Percent of Companies Citing Resource
Planning as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

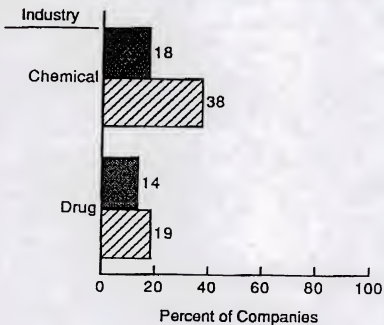
▨ Over \$1 Billion

Unweighted average: 46%

Source: Surveys of 83 chemical and drug companies/divisions



**Percent of Companies Citing Other
Systems as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

▨ Over \$1 Billion

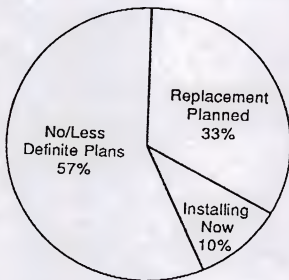
Unweighted average: 22%

Source: Surveys of 83 chemical and drug companies/divisions

INPUT



**Replacement Status for Priority Applications
Targeted Manufacturing Applications**

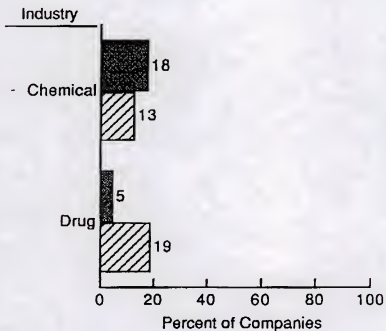


N = 124

Note: Omits financial and "other" applications



**Percent of Companies Citing Order
Entry as a Priority Application**



Size: ■ \$100 Million - \$1 Billion

▨ Over \$1 Billion

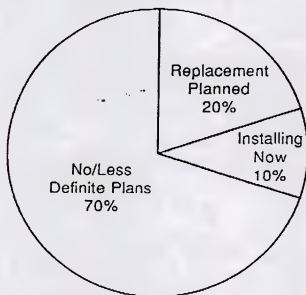
Unweighted average: 14%

Source: Surveys of 83 chemical and drug companies/divisions

INPUT



**Replacement Status for Priority Applications
Resource Planning**

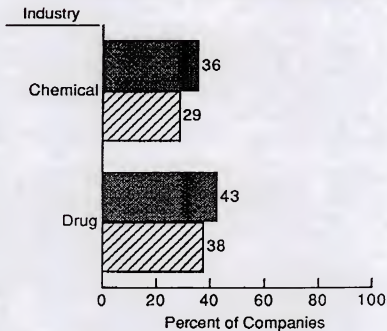


N = 10

Note: Small sample



Percent of Companies Citing Financial Systems as a Priority Application



Size: ■ \$100 Million - \$1 Billion

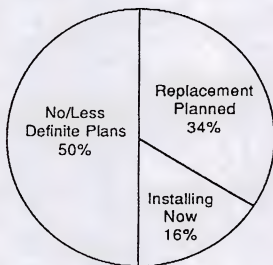
▨ Over \$1 Billion

Unweighted average: 37%

Source: Surveys of 83 chemical and drug companies/divisions



**Replacement Status for Priority Applications
Medium-Sized Drug and Chemical Companies
(Targeted Manufacturing Applications)**

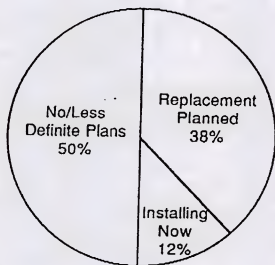


N = 68

INPUT



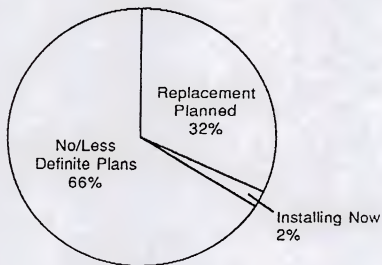
**Replacement Status for Priority Applications
Environmental**



N = 16



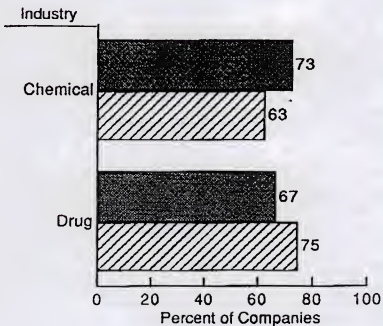
**Replacement Status for Priority Applications
Large Drug and Chemical Companies
(Targeted Manufacturing Applications)**



N = 56



Percent of Companies Citing Plant Operations as a Priority Application



Size: ■ \$100 Million - \$1 Billion

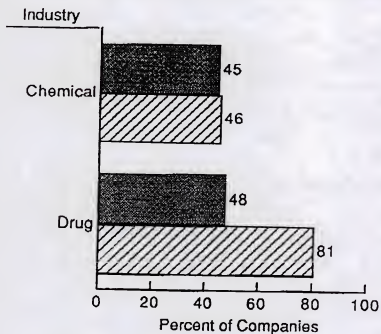
▨ Over \$1 Billion

Unweighted average: 70%

Source: Surveys of 83 chemical and drug companies/divisions



Percent of Companies Citing Product Management as a Priority Application



Size: ■ \$100 Million - \$1 Billion

▨ Over \$1 Billion

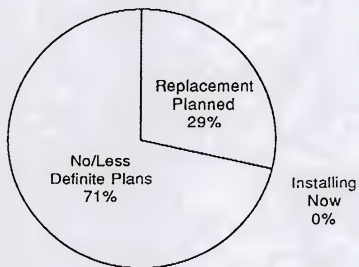
Unweighted average: 55%

Source: Surveys of 83 chemical and drug companies/divisions

INPUT



**Replacement Status for Priority Applications
Product Management**



N = 17

INPUT



INPUT

1280 Villa Street, Mountain View, CA 94041 (415) 961-3300
Fax (415) 961-3967

FAX TRANSMITTAL FORM

Date: 11/11/90
To: Name: JOANNE BOYLE
Tel./Location: _____
Co.: _____
Fax No.: _____
From: C. WADE/GRAPHICS
Subject: YMSWR. FOLS/EXH19175

Confidential: Y ☒ N
Urgent: Y ☒ N

Page: 1 of 5

File: Chron
Contact
Other:

Joanne, here's a reduced copy of these
exhibits for you to look over. Will wait
for the report. Thanks

Calvin -

11/18/90

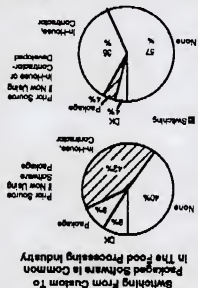
Your exhibits plus my disk
make the entire presentation.

JB.

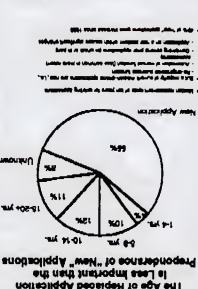




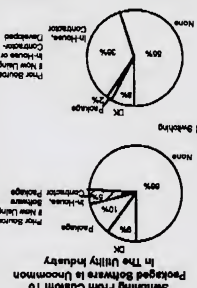
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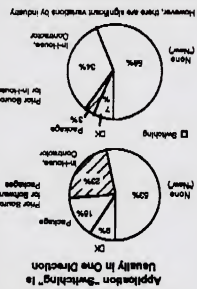
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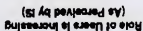
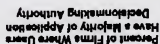
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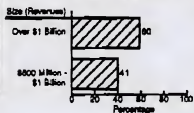


**Applications Software
Products Revenue Ramp-Up
Record/Assumptions (Cont.)**

**Applications Software
Products Revenue Ramp-Up
Record/Assumptions**



**Percent of Firms Where Technology
Change is Accelerating Application
Replacement**



INPUT



- REPORT -
PRODUCTION QC SCHEDULE

PRINTING/BINDING SPECIFICATIONS

AUTHOR PLEASE COMPLETE:

Project Code: Y125 wR

Cover **Velobind Hard Cover** ☐ **Hot Strip Soft Cover—Window** ☐ **Solid** ☐ **80 lb. White** ☐ **Preprinted** ☐
Binder ☐ **Shrink Wrap** ☐

Cover Title—Exactly how it is to appear on the report cover:
(Maximum 41 letters, spaces, and punctuation)

Front: 1st Line

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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3rd Line

Software

Spine: (1 Line) Best Bets and Yardsticks

(Binder spine may have 2 lines)

Estimated number of pages: <100 ☐

100-150 ☐150-200 ☐

>200 ☐

Executive Overviews:

No. required for Thank-You packages:

Program Manager Approval: X Mr Date: 11/18/92

FULFILLMENT/PRODUCTION PLEASE COMPLETE:

1. REPORTS: Fulfillment _____

Stock _____

TOTAL _____

2. EXECUTIVE OVERVIEWS Fulfillment _____

Stock

for Thank-You packages _____

TOTAL

3. Binding: Cover Color _____ Size _____ Foil Stamp _____

4. Date to print: _____

5. Date to be shipped: _____ Complete actual ship date on first side.

6. Fulfillment, PLEASE PRINT: ☐ labels ☐ letters ☐ packing slips



(Please fill out both sides)

WORK SPECIFICATIONS

Number of pages submitted _____ Text
Special Instructions _____ Graphics

	TOTAL	M 4
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DM 400/03 2/92



SEPTEMBER 1992

**IDENTIFICATION OF FUTURE "BEST BET"
APPLICATIONS SOFTWARE MARKETS
and
DEVELOPING A "YARDSTICK" TO MEASURE
SOFTWARE PRODUCTION OPPORTUNITIES**

Prepared for:

Andersen Consulting

Summary of Work Session Material

Prepared August 13, 1992

INPUT

The Atrium at Glenpointe, 400 Frank W. Burr Boulevard, Teaneck, NJ 07646 201-801-0050

faxed to
Tom Moldauer
9/10 +
Sent Fed Ex



Published by
INPUT
The Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, NJ 07666
U.S.A.

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SOFTWARE PRODUCTION OPPORTUNITIES**

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INPUT exercises its best efforts in preparation of the information provided in this report and believes the information contained herein to be accurate. However, INPUT shall have no liability for any loss or expense that may result from incompleteness or inaccuracy of the information provided.



Objectives

"Yardstick"

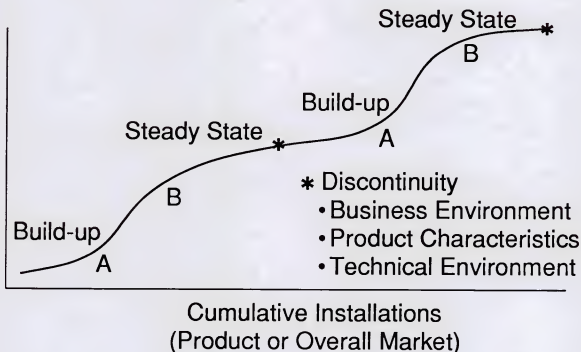
- **Develop purchase rate profiles**
- **Develop market share targets**
- **Understand market entry build-up**
- **Understand market behavior generally as well as segment variation**

"Best Bets"

- **Obtain from an informed, independent source assessments of applications software opportunities with a 5-10 year time horizon.**



Software Product Cycles



A - New Applications

B - Enhancements



"Yardstick" Research Approach

- **Interviews with corporations (IS management): mission critical applications**
 - **Package versus custom use**
 - **Age: all, packaged**
 - **Replacement cycles: historic, changes**
 - **Importance of new applications**
 - **Switching: custom to package**
 - **End user role in selection process**
 - **Effect of quality initiatives**
 - **Differential impact of segmentation (industry, customer size)**
- **Examination of market share change**
 - **In selected verticals**
 - **Product group examples**
- **Product ramp-up rates: vendor experience**



67 Companies Were Interviewed

18 Large Food Processors, e.g.,

- Pillsbury
- ConAgra
- M&M Mars
- General Foods
- Sunshine Biscuits

13 Medium Food Processors, e.g.,

- M&M Meat Products
- Zacky Farms
- Singleton Foods
- Gilroy Foods
- Bush Brothers

14 Large Utilities, e.g.,

- Northeast Utilities
- Brooklyn Union Gas
- Baltimore Gas & Electric
- Commonwealth Edison
- Southern Company

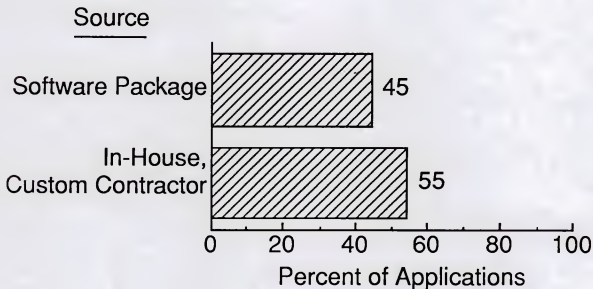
22 Medium Utilities, e.g.,

- Nebraska Public Power
- Kentucky Power
- Cherokee Electric
- St. Lawrence Gas
- Grand Gulf Nuclear Station

Interviews yielded information on 190 applications.



Almost Half of Mission-Critical Applications Use Software Packages



- Exception: Medium-sized utilities are much more likely to have installed packaged software.

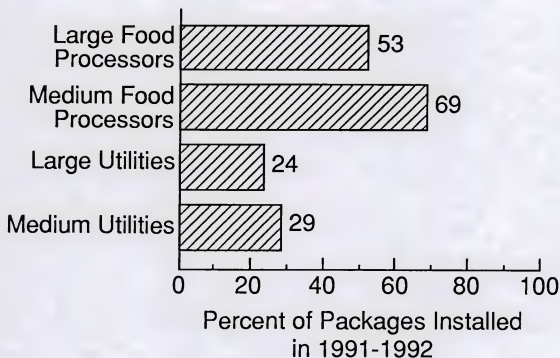


**Packages are being installed
at a faster rate than
custom applications.**

- **44% of all packages were installed in 1991-1992.**
- **32% of custom applications were installed in 1991-1992.**
- **Rates vary by industry segment.**

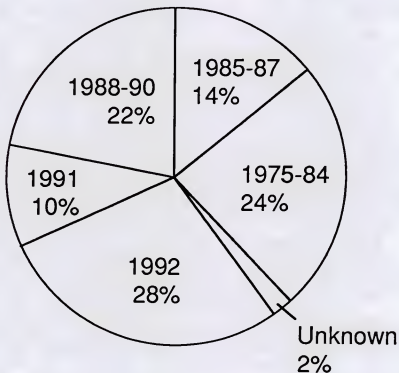


Food Processors are Even More Likely to be Installing Packages





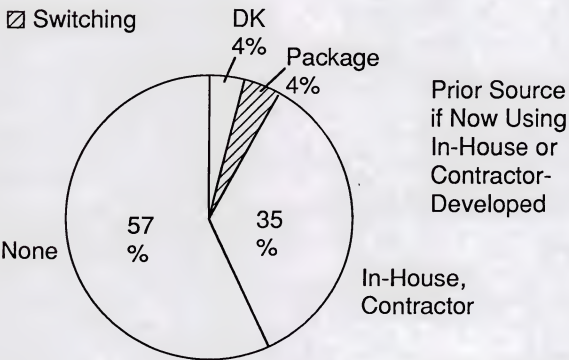
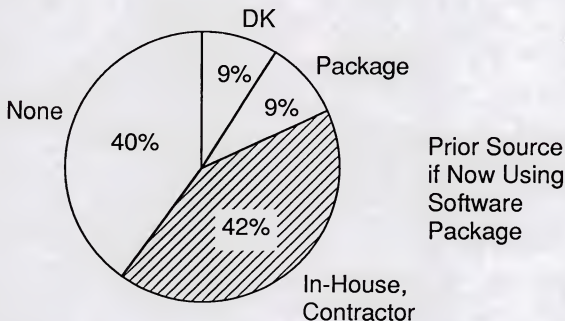
Over One-Third of Mission-Critical Applications Are Less Than Two Years Old



- This indicates an acceleration in the installation of mission-critical applications.
- "1992" includes applications close to completion; this may overstate 1992 figures somewhat by overlapping with 1993.

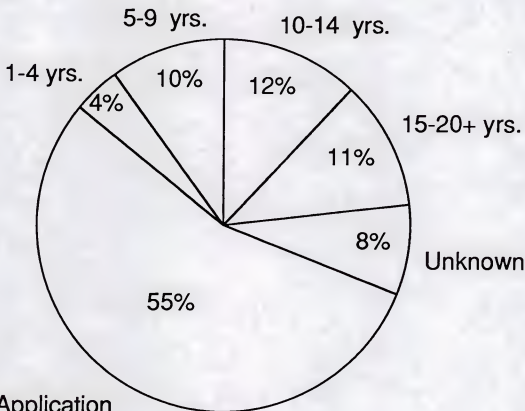


Switching From Custom To Packaged Software Is Common In The Food Processing Industry





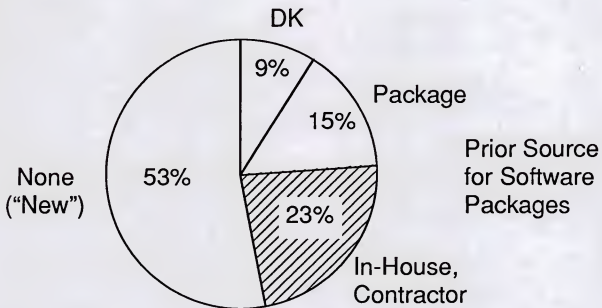
The Age of Replaced Application Is Less Important than the Preponderance of "New" Applications



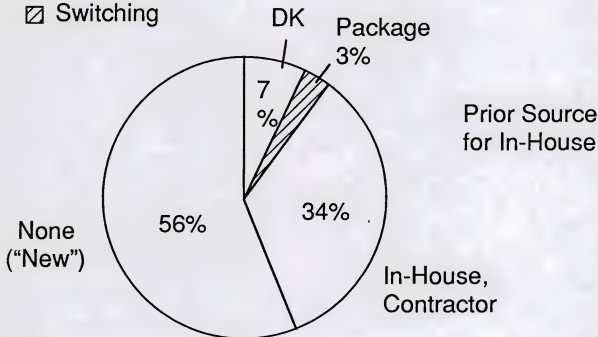
- Median replacement cycle of ten years for existing applications
- But a majority of current mission-critical applications are new, i.e.,
 - Re-engineered business function
 - Automation of manual function (less common in more recent applications)
 - Combining several prior applications (in whole or in part)
 - Application on a new platform which causes significant changes
- 40% of "new" applications were installed since 1990



Application "Switching" Is Usually in One Direction



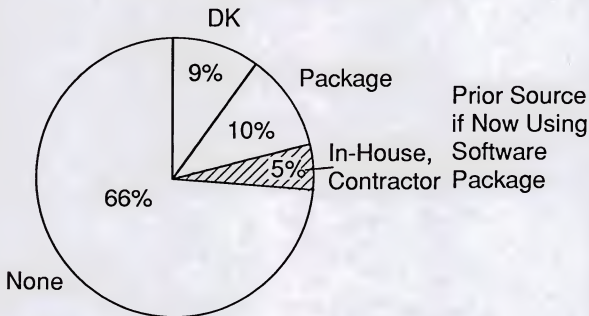
☐ Switching



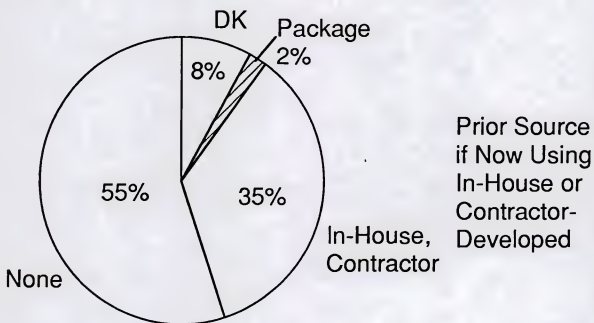
• However, there are significant variations by industry



Switching From Custom To Packaged Software Is Uncommon In The Utility Industry



☐ Switching





Applications Replacement Rate Factors: Summary

- The historic replacement rate is on a ten year cycle (i.e., 10% a year).
 - But, half of current applications were not replacements, but new.
 - The overall applications installation rate since 1990 is over 25% a year (against the universe of applications).
 - The package installation rate is about 15% a year.
 - These trends should continue.
- Segment variation in replacement/installation rates is significant.
 - Each segment should be assessed separately
 - Segments identified so far include industry and company size
 - Other segmentation factors may include the type of decision maker or a company's competitive position; this type of segmentation is less useful, since companies can not be categorized in advance, based on externally-available information.



Maximum Market Share Expectations

- If no dominant players in an industry segment (typical): 5 - 10 %
- If a dominant player in an industry segment (less common): 30%
- Product/segment niches remain for other players



Banking: 1987 and 1991 Market Shares

1987			1991	
Rank	Name	Share	Rank	Share
1	IBM	8%	1	5%
2	Unisys	6	3	2
3	NCR	5	2	3
4	SEI	3		*
5	Kirchman	3	6	2
6	Computer Associates	3	10	1
7	CIR	2		*
8	AMS	2	4	2
9	M&I	2	11	1
10	Cullinet	2	a	a
11	CDC	1	b	b
12	Systematics	1	13	1
13	Mellon	1		*
14	FIData	1		*
15	Hogan	1	12	1
16	Stockholder Systems	1		*
17	DEC	1	7	2
18	D&B Software	*	5	2
19	AGS	*	9	2
20	EDS	*	8	2
	SCS Compute	*	14	1
	Logica	*	15	1
	Shared Financial	*	16	1
	Sterling	*	17	1

* = Under 1% a = Acquired by Computer Associates b = Exited



**Property/Casualty Software:
Market Shares**

1987			1991	
<u>Rank</u>	<u>Name</u>	<u>Share</u>	<u>Rank</u>	<u>Share</u>
1	Policy Management Systems	32%	1	31%
2	Maryland Casualty (a)	7	6	2
3	Redshaw/Delphi (b)	6	2	6
4	Agena	6	3	5
5	Insurelink	5	7	2
6	Insurance Data Processing	4	4	3
7	Heritage	3	8	2
8	EDS	2	9	1
9	ISI	2	5	3

a: Maryland Casualty bought Insurance Systems of America (ISA) P&C insurance business in 1984. It later spun off the agency software business into a new subsidiary called Leader Systems (est. revenue \$8 million) and sold the original ISA software to Cedar Rapids Software Services (est. software revenue \$2 million).

b: Delphi acquired Redshaw and McCracken in 1991.



Applications Software Products Revenue Ramp-Up Record/Assumptions

Vendor	Product	Ramp-Up Period	Comments
Macola Software	Accounting (Client/Server)	1987-1990	\$10 million in 1990
PeopleSoft	Human Resources (Client/Server)	1989-1992	Profitable in 1992; success partly based on resemblance to Integral Software product (lawsuit in progress)
SAP (U.S.)	Manufacturing	1988-1990	\$15 million (Note: Needed 3 years even with European reputation and many U.S. subsidiaries as customers)



Applications Software Products Revenue Ramp-Up Record/Assumptions (Cont.)

Vendor	Product	Ramp-Up Period	Comments
Computer Associates	Applications generally	Assume 4 year ramp-up to pay off	
Systematics	Banking	Assume 3 years to widespread acceptability	Note: Systematics can guide customers to a greater extent than can many pure software firms



Ramp-Up: "Touch and Feel"

- **Critical issue for customers: seeing it work**
- **The larger the product, the more important is touch and feel**
- **Faster ramp-up is possible. Contributing factors:**
 - **Familiarity with similar product**
 - **Same product on another platform**
 - **Same product in another geography**
 - **Joint development with customers**
 - **Board of advisors (a secondary factor)**



"Best Bets": Summary by Industry Groups

Banking

- **Personal Banking Manager**
- **Decentralized Risk-Assessment System**

Insurance

- **Property/Casualty Insurance Rating/Quotation**
- **Property/Casualty Insurance Policy Administration**
- **Life Insurance Policy Issuance and Administration**
- **Health Insurance Administration**
- **Health Benefit Administration/Managed Care**

Manufacturing

- **Country of Origin Tracking**
- **Product Management System**
- **Advanced Logistics**
- **"Downsized SAP"**
- **Wait Reduction**
- **Product Formulation Information System**
- **Pharmaceutical Research Management and Reporting**
- **Advanced MRP**
- **Standard Manufacturing Workstation Interface**



"Best Bets": Summary by Industry Groups (Cont.)

Retail

- Logistics for Retail Inventories
- Flexible Couponing
- Retail Grazing
- Restructured Merchandising

Travel

- Corporate Travel Management
- Time-Sensitive Yield Management

Utilities

- Transmission Network Utilization Management
- Nuclear Reactor Management

Cross-industry

- Industry-Specific Accounting
- Sales/Prospect Tracing with GIS Component
- Environmental Management

